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Damages and Threats Caused by Hazardous Material Sites

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This document is a partial compilation of damages and threats from hazardous waste sites in the United States. It was compiled only from data readily available to EPA during Feb. & March of 1980. The damages covered in the more than 350 site descriptions contained in this report included ground water contamination, drinking water well closures, fish kills, property damage from fires and explosions, and kidney disorders, cancer and death.

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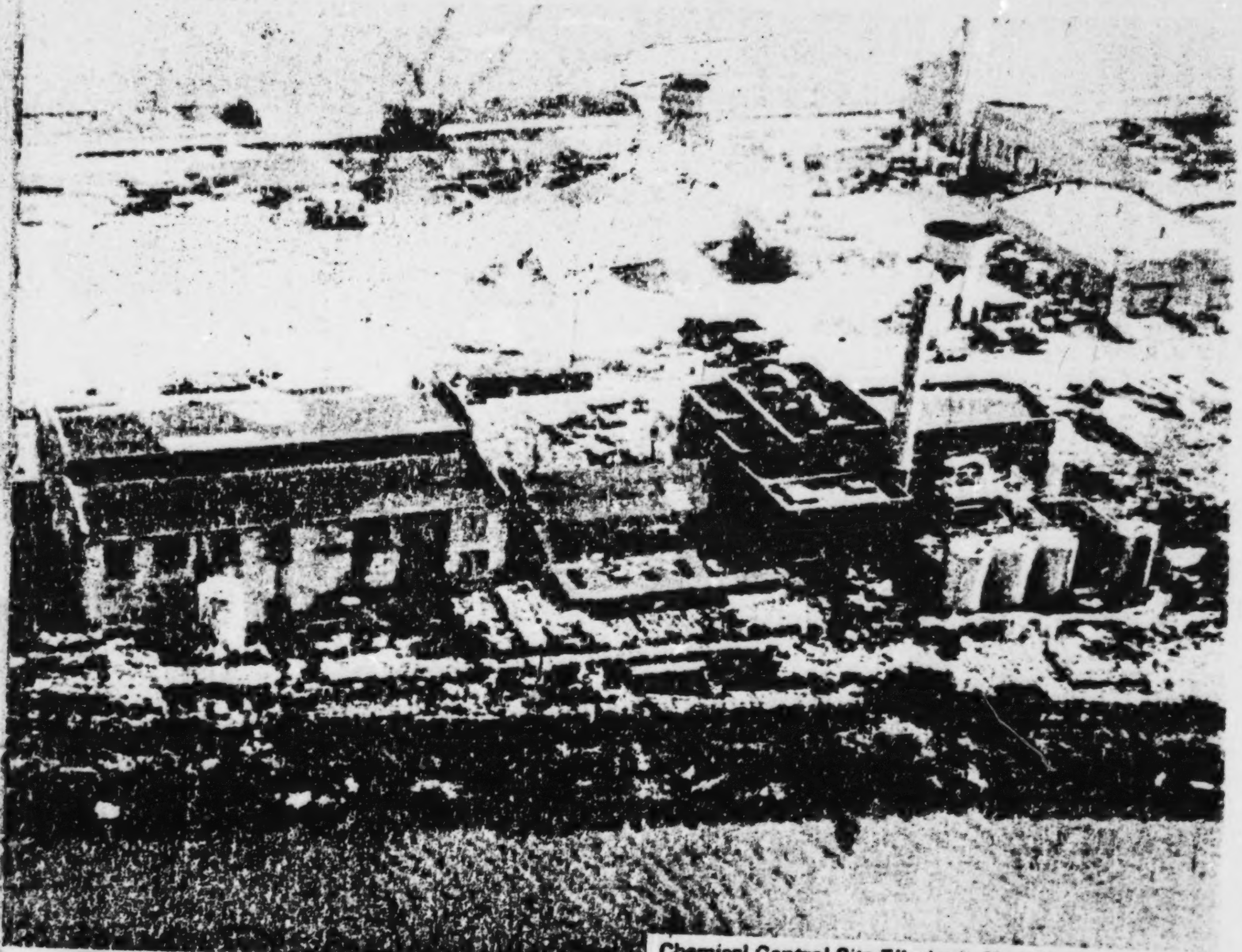

Chemical Control Site-Elizabeth, New Jersey-January 198

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DAMAGES AND THREATS CAUSED BY HAZARDOUS MATERIAL SITES

U.S. ENVIRONMENTAL PROTECTION AGENCY
OIL AND SPECIAL MATERIALS CONTROL DIVISION
WASHINGTON, D.C. 20460

MAY 1980

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Preface

This document is a partial compilation of damages and threats from hazardous waste sites in the United States. It was compiled only from data readily available to EPA during February and March 1980.

The damages covered in the more than 350 site descriptions contained in this report included ground water contamination, drinking water well closures, fish kills, property damage from fires and explosions, and kidney disorders, cancer and death.

The pathways through which the hazardous materials cause these damages encompass all environmental media -- land, surface waters, ground waters and air.

The hazardous materials which migrate from sites to cause these damages include the full range of organic and inorganic chemicals as well as waste oils and grease. They can be loosely divided into six main groups:

- solvents and related organics such as trichloroethylene, chloroform and toluene
- PCB´s and PBB´s
- pesticides
- inorganic chemicals such as ammonia, cyanide, acids and bases
- heavy metals such as mercury, chromium, lead, and cadmium
- wastes oils and grease

Each group of wastes, and often individual pollutants, exhibits different rates of migration, different effects on biota and public health, and requires different site containment, remedy and restoration procedures.

The report is divided into two sections. The first provides detailed descriptions of 24 sites* where there has been significant public health and environmental damage. Many of these sites have been assessed in order to determine necessary cleanup and remedy action but currently are only being contained due to the lack of funding and legal authority.

The second section is a compilation of abstracts of approximately 350 hazardous waste sites where damages have occurred or threaten to do so. The abstracts briefly describe the site, the toxic pollutants involved, the media or resource affected and the damages. Where information was readily available, the status of the site and possible remedial actions are included. Sites are summarized in the right hand margin by two identifiers. The first names the pollutant(s) involved, while the second is the damaged resource or affected media.

In summary, it is important to reiterate that this report is only an initial and incomplete listing of environmental and public health damages resulting from inadequate handling and disposal of hazardous materials.

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*condensed descriptions are included in the second section

The report will be revised and expanded as time and resources permit. Moreover, a great deal of additional information concerning actual and threatened damages from hazardous material sites will be available shortly from a variety of sources and activities. These include State and EPA assessments of hazardous material sites, surface impoundment assessments conducted by the States under the Safe Drinking Water Act, drinking water analysis surveys, and the prospective inventory of active hazardous waste sites required by the Resource Conservation and Recovery Act.

Users desiring further information regarding the preparation of this report may contact Mr. Robert Mason, Hazardous Waste Site Control Branch (WH-548), U.S. Environmental Protection Agency, Washington, D.C. 20460 (202/245-3051).

Introduction

Hazardous wastes pose a threat to public health and the environment. The Resource Conservation and Recovery Act of 1976 established a system for managing hazardous wastes, but recent events have drawn attention to several problems which existing law does not address. These include authority and funding for cleanup of abandoned and inactive waste sites and for compensation of a variety of third party damages including personal injury, property damage and lost income.

EPA defines hazardous wastes as those that are toxic, corrosive, ignitable, or chemically reactive. Ten to fifteen percent of all industrial wastes (or about 30-40 million metric tons, annually) are hazardous. These figures are estimated to increase three percent each year. Hazardous wastes are generated and disposed of in virtually every state in the nation. EPA estimates that 80 to 90 percent of these wastes are being disposed of in an environmentally unsafe manner.

The types of hazardous waste being disposed of include pesticides, highly toxic organic chemicals, other organic chemicals of unknown toxicity, inorganics, radioactive substances, explosives and flammables. Some wastes are not biodegradable and persist in the environment indefinitely. In addition, the mixing of certain chemical wastes may produce constituents that are more persistent and dangerous.

Hazardous wastes are composed of many constituents which vary in type, toxicity, and effect. Various constituents can pollute the air, contaminate ground and surface water (possibly public water supplies), accumulate in the food chain, produce fires and explosions, and cause poisoning, cancer, genetic deformation, birth defects, and miscarriages. In addition, social damages such as property loss or devaluation and loss of economic livelihood are potential consequences of improper hazardous waste disposal.

In the past, a lack of Federal and State legislation, the relative surplus of land and water, and the nature of the free market economy (which does not adequately internalize disposal costs), allowed generators of hazardous wastes to dispose of their residues in the least costly manner. These methods include disposal into unregulated landfills, many of them poorly designed and sited; in on-site pits, ponds, or lagoons, often without proper sealing; and unmonitored and uncontrolled incineration. At present there are approximately 18,500 municipal solid waste disposal sites, 23,000 sites for disposal of sewage sludge, and over 100,000 industrial waste sites. Adding to the problem are an untold number of sites where hazardous wastes have been illegally disposed. As a result of improper disposal methods, the environment and public health has been threatened and in many cases damaged.

The most highly publicized contamination incident by toxic chemicals occurred at the Love Canal industrial waste site in Niagara Falls, New York. However, this document clealry establishes that the tragedy of Love Canal is not an isolated example but, rather, is part of a pervasive national problem. Hazardous waste sites are causing widespread damage to the environment and pose a substantial threat to public health.

SUMMARY OF NUMBER OF SITES IN EACH STATE

TABLE I

STATE	NUMBER OF SITES	STATE	NUMBER OF SITES
Alabama	10	Minnesota	2
Alaska	1	Missouri	7
Arizona	3	Montana	1
Arkansas	5	Nevada	1
California	11	New Hampshire	3
Colorado	9	New Jersey	47
Connecticut	12	New Mexico	1
Delaware	2	New York	42
Florida	5	North Carolina	7
Georgia	1	Ohio	12
Guam	1	Oregon	1
Idaho	1	Pennsylvania	35
Illinois	28	Rhode Island	7
Indiana	6	South Carolina	3
Iowa	5	South Dakota	1
Kansas	4	Tennessee	14
Kentucky	4	Texas	8
Louisiana	6	Utah	1
Maine	7	Vermont	1
Maryland	3	Virginia	5
Massachussetts	8	Washington	10
Michigan	12	Wisconsin	10

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Summary of Number of Sites in Each State
Table I

State	Number of Sites	State	Number of Sites
Alabama	10	Minnesota	12
Alaska	1	Missouri	7
Arizona	3	Montana	1
Arkansas	5	Nevada	1
California	11	New Hampshire	3
Colorado	10	New Jersey	48
Connecticut	12	New Mexico	1
Delaware	2	New York	41
Florida	5	North Carolina	3
Georgia	1	Ohio	11
Guam	1	Oregon	1
Idaho	1	Pennsylvania	46
Illinois	28	Rhode Island	7
Indiana	5	South Carolina	3
Iowa	5	South Dakota	1
Kansas	3	Tennessee	14
Kentucky	1	Texas	8
Louisiana	7	Utah	1
Maine	[illegible]	Vermont	1
Maryland	3	Virginia	4
Massachusetts	7	Washington	10
Michigan	9	Wisconsin	10

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SUMMARY OF HAZARDOUS MATERIAL DAMAGES

The following table summarizes the number and type of hazardous materials damages identified in the Hazardous Waste Site Report. The types of hazardous materials damages have been grouped under nine general categories:

1. Groundwater/Water Supply - These damages that have resulted in the contamination of water supplies and/or groundwaters. Water supplies are both groundwaters and reservoirs. While most potable water supplies in the Report are groundwaters, not all groundwaters are potable drinking water supplies.
2. Well Closures - These are incidents where drinking water wells were actually closed. Instances of contamination but not closure are not included. The citation consists of the number of sites in a particular State followed by the number (in parentheses) of actual wells closed in the State.
3. Habitat Destruction - These are incidents where natural habitats such as streams, rivers, lakes, or fields have been rendered unfit for indigenous species or contaminated to the extent that indigenous species, while present, are adversely affected.
4. Human Health - These are instances of actual human health damages such as kidney malfunction, respiratory difficulties or death. Endangerment sites are not included in this category.

5. **Soil Contamination** - While most sites have some degree of soil contamination, only those sites where the major consideration is the hazard presented by the presence of contaminated soils are included. Such sites as those rendered unfit for planned playgrounds or developments are examples of situations in this category.

6. **Fish Kills** - These are cases of documented fish kills caused by the chronic release of hazardous materials from a site.

7. **Livestock** - These are instances of actual loss of livestock due to the ingestion of contaminated vegetation or waters.

8. **POTWs or Sewers** - These are instances of chronic discharge of hazardous materials into sewer systems or to publicly owned treatment works (POTWs) which rendered them unsafe or inoperable.

9. **Other** - These sites include damages to crops or wildlife, air pollution, fire or explosion hazards, and abandoned sites.

It should be noted that, for a given site, the categories described above and summarized in the table are not mutually exclusive; that is, one site may have resulted in more than one category of damages.

SUMMARY OF DAMAGES BY HAZARDOUS MATERIALS
TABLE II

State	Ground water/ Water Supply	Well Closures	Habitat Destruction	Human Health	Soil Contamination	Fish Kills	Livestock	POTW's or Sewers	Other
Alabama	3		3		3	1			1
Alaska			1						
Arizona	3				1				
Arkansas			3						
California	7	3(34)							
Colorado	2			2	2				
Connecticut	7	4(21)		1	2				2
Delaware	2								
Florida	2	2(6+)	1			1			1
Georgia			1					1	
Hawaii									
Idaho					1				
Illinois	17	3(11)	3	1	1	1	3		3
Indiana	4	2(2+)	1		3	1	1	1	1
Iowa	3				1				1
Kansas			1			1	1		1
Kentucky			2	1				1	
Louisiana	2		1	1	1		1		1
Maine	3	2(16+)	1	1					1
Maryland	1		1						
Massachusetts	4	2(6)	2	1	1				1
Michigan	7	3(8)	2	1	3				
Minnesota	7	2(4)		2	3	1			1
Mississippi									
Missouri	1		2	1	1				
Montana									
Nebraska									
Nevada									
New Hampshire	1	1(17)							
New Jersey	9	3(252)	3	5		1			1
New Mexico				1					
New York	15	3(41)	9	3	3				4
North Carolina	2	2(unk)	1		2	2	1		2
North Dakota									
Ohio	3	1	6	1	3	1	1		1
Oklahoma									
Oregon	1	1			1				
Pennsylvania	35	2(9)	11	11	5	1		2	1
Rhode Island	5	2(15)	2		3				
South Carolina	2		1						1
South Dakota									
Tennessee	5	3(22+)	3	2	1			1	
Texas	1		4		1	1			1
Utah	1								
Vermont	1								
Virginia			3						
Washington	6		3	1	1				1
West Virginia									
Wisconsin	4	111(3)	3						
Wyoming									1
Guam									1
Trust Territories									
TOTAL	168	44(468+)	74	27	43	12	7	6	29

SUMMARY OF CHEMICALS AND CHEMICAL PRECURSORS FOUND AT HAZARDOUS MATERIALS SITES

The following tables provide summary data for the chemicals found at the more than 350 hazardous materials sites identified in the report. Neither the sites identified in the Report, nor the chemicals identified at the sites are intended to constitute a valid statistical sampling of the total hazardous materials situation. The EPA does believe, however, that these data are useful in illustrating the basis of the hazardous materials situation and shows the relationship between raw materials subject to fee collection and wastes present at hazardous waste disposal sites.

Table III list the petrochemical and inorganic raw materials to which the proposed Superfund fee will be assessed and gives the number of sites that were identified as containing each raw material as well as the number of sites containing chemical compounds which are derived from the listed raw materials. It can be seen from the table that toluene and chromium and chromium compounds are the raw materials most often found at sites while benzene and chlorine are the most frequent precursors of substances found at the hazardous materials sites.

Table IV lists the direct raw material precursors for each of the chemicals found at hazardous material sites identified in the Report. There are three points to be made with regard to the information included in this table:

1) The list of chemicals identified as being present at the sites is not necessarily a complete list of those chemicals actually present. The number and type of chemicals identified at sites has generally been limited due to resource and technical constraints.
2) The list of raw materials compiled for each chemical is not exhaustive. Many intermediate chemicals and catalysts have been omitted.
3) Many chemicals, especially acids and bases, which were originally placed at disposal sites, may quickly react with other materials present, e.g., containers, other wastes, thereby changing their chemical nature and avoiding detection during on-site visits.

Therefore, neither the lists of materials identified at the sites nor the raw materials may be considered to be complete. Only a conservative idea of the extent to which each of the raw materials subject to the Superfund fee collection contributes to the hazardous materials sites situation can be obtained from these data.

TABLE III

PETROCHEMICALS	SITES CONTAINING RAW MATERIAL	SITES CONTAINING DERIVATIVES	TOTAL SITES
Acetylene	0	56	56
Benzene	19	113	132
Butane	0	8	8
Butylene	0	8	8
Butadiene	0	0	0
Ethylene	0	97	97
Methane	1	44	45
Napthalene	2	0	2
Propylene	0	14	14
Toluene	23	30	53
Xylene	12	6	18
WASTE OIL	35	0	35
INORGANICS			
Ammonia	6	22	28
Antimony & compounds	1	0	1
Arsenic & compounds	10	0	10
Barium sulfide	0	0	0
Berylium & compounds	0	0	0
Bromine	0	2	2
Cadmium	5	0	5
Chlorine & compounds	5	197	202
Chromium & compounds	18	1	19
Cobalt	1	0	1
Copper	6	1	7
Hydrogen fluoride	2	1	3
Lead & compounds	11	0	11
Mercury	16	0	16
Nickel	4	0	4
Nitric acid	1	0	1
Phosphorous & compounds	6	8	14
Potassium hydroxide	1	0	1
Selenium	1	0	1
Sodium hydroxide	0	39	39
Sulfuric acid	3	35	38
Stannic(ous) chlorides	0	0	0
Zinc	9	2	11

TABLE IV

MATERIALS FOUND ON SITE	PETROCHEMICAL AND INORGANIC CHEMICAL PRECURSORS
ACETIC ACID	Butane, Ethylene, Methane, Propane
ACETONE	Benzene, Propylene
ALDRIN	Acetylene, Chlorine, Pentane
ALKYL BENZENE SULFONATE	Benzene, Propylene, Sulfuric acid
ALLYL ETHER	Chlorine, Copper, Sodium hydroxide Sulfuric acid, Propylene
ASBESTOS	Natural mineral
BENZENE HEXACHLORIDE	Benzene, Chlorine
CARBOFURAN	Acetic acid, Ethylene, Chlorine, Methane
CARBON TETRACHLORIDE	Chlorine, Methane, Propane
CHLORANILIC ACID	Benzene, Chlorine
CHLOROFORM	Chlorine, Methane
CHROMIC ACID	Chromium, Sulfuric acid
CUMENE	Benzene, Phosphoric acid, Propylene
CYANIDE	Ammonia, Methane
CYCLOHEXAMINE	Ammonia, Benzene, Sulfuric acid
DIBROMOCHLOROPROPANE	Bromine, Chlorine, Propylene
DDT	Benzene, Chlorine, Sulfuric acid
DEF	Butylene, Chlorine, Phosphorus, Sodium, Hydrogen sulfide
DICHLOROBENZENE	Chlorine, Benzene
DIELDRIN	Acetylene, chlorine, Pentane
DICHLOROETHANE	Chlorine, Crude oil, Natural gas
DICHLOROETHYLENE	Chlorine, Ethylene

TABLE IV (Continued)

MATERIALS FOUND ON SITE	PETROCHEMICAL AND INORGANIC CHEMICAL PRECURSORS
DIMETHYL SULFIDE	Hydrogen sulfide, Methane
DIOXANE	Ethylene, Sodium hydroxide
DIOXIN	Acetic acid, Chlorine, Phenol, Sodium hydroxide
ENDOSULFAN	Butylene, Chlorine, Pentane, Toluene, Sulfuric acid
ENDRIN	Acetylene, Ethylene, Chlorine, Pentane, Hydrochloric acid, Sodium hydroxide
ETHANOL	Ethylene
ETHYLBENZENE	Benzene, Coal, Ethylene, Xylene
ETHYL ACETATE	Butane, Ethylene
ETHYLENE DIBROMIDE	Bromine, Ethylene
ETHYLENE GLYCOL	Ethylene, Sodium hydroxide
FREON	Chlorine, Ethylene, Methane, Hydrogen fluoride
HEPTANE	Crude Oil
HEPTACHLOR	Acetylene, Chlorine, Pentane
HEXACHLOROBENZENE	Benzene, Chlorine
HEXACHLOROBUTADIENE	Butylene, Hydrochloric acid
HEXACHLOROCYCLOPENTADIENE	Chlorine, Pentane
HEXANE	Crude oil
HYDROGEN SULFIDE	Hydrogen, Sulfur
KEPONE	Aluminum, Chlorine, Pentane
LINDANE	Benzene, Chlorine
LITHIUM	Natural metal

TABLE IV (Continued)

MATERIALS FOUND ON SITE	PETROCHEMICAL AND INORGANIC CHEMICAL PRECURSORS
METHACRYLIC ACID	Ammonia, Benzsene, Propylene
METHANE GAS	Natural gas
METHYL ETHYL KETONE	n-Butane, Butylene
METHYLENE CHLORIDE	Chlorine, Methane
MIREX	Aluminum, Chlorine, Pentane
O-NITOANILINE	Ammonia, Benzene, Sulfuric acid
PARATHION	Ethanol, Chlorine, Methane, Phosphorus, Ammonia, Sodium
POLYBROMINATED BIPHENYLS	Benzene, Bromine
POLYCHLORINATED BIPHENYLS	Benzene, Chlorine
PENTACHLOROPHENOL	Benzene, Chlorine, Phenol, Toluene
PHENOL	Benzene, Sodium hydroxide, Sulfuric acid, Toluene
SODIUM	Natural metal
SODIUM ALUMINUM HYDROXIDE	Aluminum ore, Sodium hydroxide
STYRENE	Benzene, Ethylene, Xylene
TETRACHLOROBENZENE	Benzene, Chlorine
TETRACHLOROETHYLENE	Ethylene, Chlorine
TRICHLOROETHANE	Ethylene, Chlorine
TRICHLOROETHYLENE	Acetylene, Chlorine, Ethylene
TRIMETHYLSILANOL	Ammonia, Chlorine, Bromine, Methane
TRIS (TROMETHAMINE)	Ammonia, Methane
VINYL CHLORIDE	Acetylene, Ethylene, Hydrochloric acid, Sodium hydroxide
ZINC CHLORIDE	Chlorine, Hydrochloric acid, Zinc

TABLE IV (Continued)

OTHER MATERIALS FOUND ON SITES	REPRESENTATIVE CONSTITUENTS
ACIDS	Nitric acid, Chromic acid, Sulfuric acid
ALKALINE WASTES	Sodium hydroxide, Potassium hydroxide
AROMATIC HYDROCARBONS	Benzene, Butylene, Butadiene, Napthalene, etc.
CHLORINATED ORGANICS	Benzene, Chlorine
COAL TARS	Napthalene, Toluene, Benzene
EXPLOSIVES	Methane, Ammonia, Nitric acid
FLY ASH	Mineral salts, heavy metals
HERBICIDES	Arsenic, Benzsene, Chlorine
NITRATES	Nitric acid, Ammonia
PESTICIDES	Arsenic, Benzene, Chlorine
PETROCHEMICALS	
POLYNUCLEAR ORGANICS	Benzene, Napthalene, Toluene
SOLVENTS	Butylene, Butadiene, Napthalene, Benzene
TOXIC METALS	Cadmium, Chromium, Lead, Mercury
URANIUM RADIATION	Uranium
VOLATILE ORGANICS	Methane, Acetylene, Benzene, Butane
WASTE OIL	Napthalene, Toluene, Xylene

SECTION 1

Examples of Hazardous Waste Sites causing adverse Public Health and Environmental consequences.

Lathrop, California, 1980

The Occidental Chemical Company's facilty in Lathrop, California has been the source of extensive environmental contamination and potential human health problems in the town of Lathrop. For many years, Occidental and its predecessors have dumped chemical and radiological wastes into unlined ponds, a lined pond, ditches and other disposal areas at the Lathrop facility. The liquid and solid wastes from the manufacture of pesticides and fertilizer products at the plant have percolated downward through the soil, causing pollution and contamination of the underlying shallow groundwater. This shallow groundwater, the top layer of which lies approximately 7 to 25 feet from the surface, generally migrates in a northerly direction from the Lathrop facility toward the cities of Stockton and Lathrop. Polluted groundwater from the facility's disposal areas, in the course of migraton, has reached groundwater that is the source of drinking water for the Lathrop County Water District, whose wells are located approximately 1.5 miles from the facility and service more than 3,000 persons. In addition, other local domestic and public water supplies within the district have been affected.

Occidental Chemical Company is a wholly owned subsidary of Hooker Chemical Corporation, whose parent company is Occidental Petroleum Corporation. Its main production facility located in the town of Lathrop, lies approximately 10 miles south of Stockton, California and 1.8 miles east of the San Joaquin River in San Joaquin County. The plant is bordered by an automobile glass manufacturing plant, a dairy farm, two streets and the outskirts of Lathrop.

The company and its predecessors have manufactured, formulated and handled pesticide and fertilizer products at the Lathrop facility since 1953, when the original Best Fertilizer Company plant was constructed. In 1963, Occidental acquired Best and has continued to produce pesticides including Dibromochloropropane (DBCP until 1977), Heptachlor, Hexachlorocylohexane (BHC), the gamma isomer of which is commercially known as Lindane, S,S,S-Tributyl phosphorotrithioate (DEF), Chlordane, Dieldrin, Ethylene Dibromide, Dimethoate, and 1,1,1 Trichloro-2, 2-bis (p-chlorophenyl) ethane (otherwise known as DDT). In addition, Occidental has produced a wide range of fertilizers such as sulfuric, phosphoric, and flurosilicic acid, ammonia, ammonium phosphate, and ammonium sulfate. Gypsum (also known as calcium sulfate) is produced as a fertilizer by-product.

As long ago as 1960, the California Regional Water Quality Control Board issued a Resolution prohibiting Occidental's prodecessor, Best Fertilizer, from discharging chemical wastes which would cause the level of inorganic chemicals in usable groundwater to exceed permissible limits or otherwise pollute ground or surface waters so as to be deleterious to human, animal or aquatic life. In 1968 this Resolution was reissued to Occidental.

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Since then, a host of hazardous chemicals have been discovered in the vicinity of the facility and some of these have migrated from containment ponds and disposal areas to the Lathrop County Water District wells. Among the disposal facilities on-site are an unlined pesticide waste pond; six unlined gypsum ponds; an unlined concentrator pond that cools phosphoric acid plant concentrator; a hydraulic asphalt-lined rainwater runoff pond; a cooling pond disposal ditch used to transport pesticide wastes from the plant to the pesticide pond, and a "boneyard" disposal area where solid pesticide and heavy metal catalyst wastes have been disposed.

Hazardous wastes that have migrated to the Lathrop District drinking wells and have been found in detectable levels are the following: DBCP, a known animal and suspected human carcinogen which causes sterility in males; Lindane, a toxic pesticide and known animal carcinogen which drastically affects reproduction in animals, and DEF, which damages the central nervous system. Alpha radiation from uranium in gypsum ponds has also been detected in the Lathrop water supply, water wells and irrigation wells. It is a known human carcinogen which usually causes fatal leukemia. Among chemicals detected in the soil at the facility and/or in the groundwater are: Chlordane, Dieldrin, Heptachlor, Ethylene Dibromide, Dimethoate, and DDT, all of which are highly toxic and known animal carcinogens. Concentrations of sulfates and nitrates exceeding the Regional Water Board's limits have also been found in production wells in the vicinity of the Lathrop facility.

The Justice Department, acting for EPA, and with the State of California filed suit in Federal District Court in Sacramento on December 18, 1979 against Occidental and its parent corporation, charging that the company's discharges pose an "imminent and substantial endangerment to health and the environment" and will continue to do so in the future.

Occidental is specifically charged with having taken inadequate account of possible environmental dangers from its waste deposits over a period of years in unlined or inadequately lined ponds and other disposal areas; failure to take adequate precautions to prevent waste migration and ultimately contamination of agricultural, industrial and domestic water; and failure to report its discharges of pesticides and radiological substances.

The suit asks the court to enjoin the company to complete clean-up measures by July 1, 1981 to prevent further migration of groundwater contaminants. The measures include implementation of a comprehensive plan to determine the extent of pesticide, chemical and radiological contamination of nearby groundwater and soils; immediate and perpetual monitoring of contaminants to verify that the migration has ceased; excavation of hazardous waste materials and contaminated soils from various disposal areas; curtailment of hazardous, liquid and solid waste storage for any period in excess of 6 months; cessation of the discharge of pesticide, chemical and other wastes to surface water, groundwater or land; a guarantee of sufficient funds to clean-up; and provision of drinking water to any users whose water supply is contaminated by discharge from Occidental/Hooker's Lathrop facility. In addition to this injunctive relief, the suit asks for financial reimbursement to California and the U.S. for costs incurred in determining the extent of the public health and environmental threat, and substantial civil penalties to the State of California for continuing violations of the Regional Water Board's orders.

Stringfellow Disposal Site, Riverside County, California

The Stringfellow Class I Disposal Site landfill contains a wide variety of industrial wastes (primarily spent acids and caustics), totaling approximately 32,000,000 gallons in 19 years. Contamination of groundwater has occurred from leachate and surface run-off. The State Legislature in 1978 appropriated $370,000 for the closure and maintenance of the Stringfellow site by the Santa Anna Regional Water Quality Control Board. Final closure is now estimated to total $12 - 13 million.

On March 5, 1980, the Regional Response Team determined that Stringfellow was leaching wastes to the Santa Anna River, and in imminent danger of major structural failure. $290,000 in 311K funds was spent over ten days to remove 4 million gallons of wastewater, reinforce containments, and repair the access road. Leachate was controlled, and there were no major discharges.

Waste received primary wastewater treatment, dilution, and discharge to an ocean outfall.

Groundwater Contamination Beneath the Rocky Mountain Arsenal

Rocky Mountain Arsenal, jointly operated by the U.S. Army Chemical Corps. and Shell Chemical Company, is located between Denver and Brighton, Colorado. Over the years, the facility has disposed of a complex mixture of chemical by-products from the manufacture of pesticides and herbicides, along with other wastes during the years 1943-1957. Originally, wastes were disposed of in unlined holding ponds, a practice which resulted in infiltration into the shallow water table aquifer and the consequent migration of contaminants through the groundwater. Although this practice was discontinued in 1957, extensive groundwater contamination is still very much in evidence.

To date, thirty square miles of the shallow water table aquifer are contaminated, resulting in the temporary abandonment of sixty-four domestic, stock, and irrigation wells. Soil in the vicinity of one pond is contaminated by the pesticides aldrin and dieldrin. Classified as cyclodienes, these compounds are derivatives of hexachlorocyclopentadiene. They bioaccumulate in the fatty tissues of terrestrial and aquatic organisms and tend to persist in the environmental over long periods. These pesticides are quite toxic, mainly affecting the central nervous system. Typical symptoms of poisoning include: headache, blurred vision, dizziness, involuntary muscular movements, sweating, insomnia, nausea, and general malaise. More severe cases manifest jerking of muscles and convulsions resembling epilepsy, with loss of consciousness, disorientation, personality changes and loss of memory.

In April 1975, the Colorado Department of Health issued a cease and desist order against the U.S. Army and Shell Chemical Company to stop polluting the surface and groundwater. Since that the Army has entered into an extensive joint monitoring program with the Department of Health. A 96 acre asphalt lined reservoir with a holding capacity of 240 million gallons and an injection well have been constructed. In an effort to eliminate leakage from the perimeter of the asphalt-lined reservoir, the influent pipe has been extended to the center, and 800 feet of chemical sewer line has been replaced. Water which has surfaced in a slough area located 1.3 miles northeast of the reservoir has been pumped back to prevent further contamination.

The Army has constructed a slurry trench cut-off wall along a section of the northern boundary of the arsenal property. Contaminated groundwater is pumped from one side of the cutoff wall, treated, and re-injected on the other side. The Army is evaluating plans for extending this trench.

Byron Salvage - Byron, Illinois

The Byron Salvage Yard, occupying an area of approximately 20 acres, was established in 1970 as a waste disposal operation. As early as October, 1970, investigative field work by the Illinois EPA (IEPA) revealed that cyanide-containing plating waste was sprayed onto the roads in and around the salvage yard and that plating wastes, barrels of waste oil, sodium cyanide, paint and paint thinners were dumped, partially buried, or buried in the ravine on the property and are strewn on the ground surface. These activities resulted in high concentrations of cyanide and toxic metals in soils, surface water and groundwater. An estimated 10 acres of the 20 acre site are contaminated.

The salvage yard is primarily located on an upland area which is dissected by several small ravines. These ravines, 10 to 20 feet deep, are tributaries to South Branch Woodland Creek which is an intermittent stream. The South Branch Woodland Creek flows northwest, about two miles, to Rock River.

Infiltration of liquid wastes or leaching out of chemicals from the wastes by precipitation has caused an accumulation of cyanide and heavy metals in the soils on the site in significant quantities. Samples collected from pools and flowing water indicate that surface-water is polluted in the ravines and downstream in South Branch Woodland Creek near the ravines.

The magnitude of the pollution of groundwater seems to be less than that of soils and surface water, although percolation of the polluted surface water does pose a serious threat to the two principal aquifers in the area.

No remedial action has been taken at the Byron Salvage Yard except for covering of the barrels in the ravines, which was ordered by IEPA in 1972.

MID-CO-Industrial Highway, Gary, Indiana

In August, 1977, a five-acre solvent recovery facility in Gary, Indiana was the scene of a spectacular fire leaving a large amount of debris from the fire and a small number of undamaged drums at the site.

The Industrial Highway facility had provided above ground storage in an open field since early 1975. While no inventory has been taken of the wastes present at the site, they included at least plating wastes, solvents, acids, and cyanide.

The site is in a heavily industrial area of the City of Gary with the nearest residence located approximately one half mile away. The site is strewn with the charred remains of perhaps 40,000-50,000 55-gallon drums. There is also at least one in-ground storage tank (which still contains an unidentified pink substance), several hundred intact drums (some containing cyanide), and a sludge pit with surface dimensions of approximately 100 x 20 feet. There are also several large tanks, a truck trailer, distillation equipment and assorted other debris strewn around the site.

Soil and water samples from the site have shown contamination by phenols, chromium, cyanides, arsenic and lead. There is a potential for groundwater contamination. The site also poses a fire hazard and, due to lax security may present a potential exposure of solvent fumes to the public.

Estimates of the cost of cleaning the site are approximately $1,800,000 for removal and disposal of remaining on-site wastes and monitoring, and $3,114,000 for measures which minimize future pollution problems.

Hexachlorobenzene Contamination of Cattle in Louisiana

In 1972, a routine sample of beef fat taken as part of the U.S. Department of Agriculture's Meat and Poultry Inspection Program, revealed a high level of contamination by hexachlorobenzene (HCB). HCB, a by-product of the manufacture of carbon tetrachloride and perchloroethylene, can cause liver deterioration, convulsions and death.

Contaminated steer were traced to a herd in Darrow, Louisiana. Subsequent sampling of the entire herd revealed extensive contamination by HCB in the cattle, as well as in soils and vegetation.

The source of the HCB contamination was traced to volatilization of HCB from landfilled wastes in the area, as well as from direct emissions into the air from the Vulcan Materials Corporation and other similar industrial plants in the area. Settlement of HCB on pastures led to bioaccumulation of HCB in the tissues of grazing cattle.

When evidence of widespread contamination was confirmed, the State of Louisiana imposed a quarantine on livestock produced over the 100 square mile wide affected area. In 1973, the State also forced the Vulcan Materials Corporation to stop any air emissions of HCB, as well as to bury its wastes on-site, using a plastic liner and soil cover.

Initial estimates of losses to be incurred by ranchers were as high as $3.9 million, based on the assumption that approximately 30,000 cattle would have to be destroyed. However, levels of HCB dropped with time as the cattle were removed from contaminated areas and fed an uncontaminated diet. Only 27 animals proved unmarketable by the end of 1974, when the quarantine was lifted by the State.

The total direct cost of this incident was in excess of $380,000, primarily due to monitoring and enforcement costs of $143,000 and the loss of use of grazing land estimated at $200,000. The loss due to unmarketable cattle was reduced to $38,000.

As a result of the incident, a number of HCB-related studies were initiated by EPA and other agencies. One of these has shown disproprotionately high plasma HCB levels in people living in the area of Louisiana where the contamination occurred. The highest level encountered in the general population was 23 ppb, and a waste disposal facility worker was found to have a level of 345 ppb. The average level was 3.6 ppb. No toxic symptoms were evident.

HCB is a pollutant of concern because it is persistent in the environment and is chemically and biologically stable. Continued low-dose exposure to HCB by ingestion or inhalation causes bioaccumulation in animal adipose issues. This can result in chronic damage to the liver and affect enzymatic function.

Wells Closed as a Result of Chemical Contamination in Gray, Maine

In September of 1977 the McKin Company was ordered to close by town officials of Gray, Maine, due to drinking water well contamination associated with the site. The facility was built in 1972 to handle waste oil from the "Tamano" oil spill in Casco Bay. From 1972 until 1977, the primary operation was as a transfer station for fuel still bottoms. Materials stored in existing tanks were mixed together for final shipment to rerefiners. Approximately 100,000 to 200,000 gallons were annually processed by McKin at the Gray site.

There was evidence that wastes were spilled at the processing facility and leached into the groundwater aquifer. An unpleasant taste and offensive odors in the drinking water were reported in 1974. Samples of drinking water were submitted to the state laboratory for testing, but the contaminants were not identified. The well water discolored laundry, and so the residents started turning to alternate sources for their water supply.

In 1977, trichloroethane, trichloroethylene, freon, acetone, xylene, dimethyl sulfide, trimethylsilanol, and alcohols were identified. Toxic organics were detected in eight domestic wells within 2,000 feet of the McKin Company. As a result, the town health officer ordered sixteen contaminated wells in the area capped. Traces of these same chemicals were also discovered in the town's public water supply. Contaminants are thought to have leached into the water table from the town dump where the company disposed of its chemical wastes.

Remedial measures have been undertaken. The town has installed an alternative water supply to the threatened homes in the area at a cost of approximately $600,000. Half of the funding was committed by the U.S. Department of Housing and Urban Development. In addition, costs were estimated at $50,000 for cleanup of the McKin facility.

Environmental Contamination in Woburn, Massachusetts

A hazardous waste disposal site in Woburn, Massachusetts is under investigation, in what may be one of the oldest chemical disposal areas in the country. The site located in the northern section of the town covers approximately 800 acres. Historically, the area has been inhabited by a myriad of industries known or suspected to have used dangerous chemicals. A portion of the site was occupied by Merrimac Chemical Company which supplied acids and other chemicals to regional textile, leather, and paper industries. Over the years, Monsanto, Stepan Chemical, and Stauffer Chemical have operated facilities in the town of Woburn or in the Aberjona River drainage basin. Recently a portion of the area was acquired by a local developer who subdivided and sold several parcels for commercial development

A number of known contaminants were disposed of on-site in substantial quantities. Heavy metals associated with tannery wastes-chromium, arsenic, lead, and zinc, as well as volatile organics and chlorinated organics were disposed of in the area, and it is now suspected that these wastes are contaminating the air, soils, and groundwater, and may be responsible for human health problems in the region.

The Massachusetts Department of Public Health has begun to analyze cancer mortality statistics for the years 1969 through 1978. Age adjusted death rates for these years were 13% higher than would be statistically expected from 1972 until the present and the acute childhood leukemia rate is more than double statistical predictions. For the census tract, which encompasses the southern portion of the town, less than one case would be expected in a 15 year period - eight have been observed.

As a result of these statistics, careful correlation of health data with environmental sampling is necessary. Studies are now being undertaken to assess this problem. Although Federal and State consent decrees under wetland protection laws have been negotiated to deal with about 250 acres of the site, there are a number of hazardous wastes that must be investigated further. In addition, the management issues to assure most efficient use of the resource of more than two dozen government and private entities are substantial.

Hooker Chemical, Montague Plant, Muskeegon, Michigan, 1979

The Hooker Chemical Company occupies an 880 acre site near Muskeegon, Michigan where over 30 types of chemical substances, including pesticides, were disposed. The disposal site is located on the shore of White Lake and contains barrels of waste materials which have been buried as well as the residues of liquid wastes that were dumped there.

The leaching of these hazardous materials from the disposal site has contaminated both the soil and groundwaters within the site. In addition, the leachate has migrated to White Lake where it has harmed aquatic life. Leachate has also contaminated drinking water wells thus exposing nearby residents to possible health effects.

In October of 1979, Hooker Chemical Company and the State of Michigan signed a consent decree whereby the company agreed to clean up this disposal site. The cost of remedial actions is estimated to be $15,000,000 and is to include purge wells, carbon filtration, removal of contaminated soil, dismanteling of buildings and the construction of a vault to contain the remaining hazardous materials.

Arsenic Poisoning in Minnesota

Beginning in May, 1972, eleven residents of Perham, Minnesota developed arsenic poisoning, shortly after a well was drilled to supply drinking water for a new office and warehouse structure.

Over a ten week period, eleven employees on the site became ill. Two persons required hospitalization and one person lost the use of his legs for about six months due to severe neuropathy. Acute arsenic poisoning results in marked irritation of the stomach and intestines. Nausea, vomiting and diarrhea are frequently symptoms. In severe cases, this can lead to shock with weak, rapid pulse, cold sweats, coma and death. Liver damage may occur, and distrubances of the blood, kidneys, and central nervous system are not infrequent. Arsenic compounds are also a recognized carcinogen of the skin, lungs and liver.

Analysis of water from the recently drilled well revealed high concentrations of arsenic. The source of arsenic was pinpointed to approximately fifty pounds of grasshopper bait which had been buried in a trench about forty years before. The area of disposal was directly adjacent to the new office and warehouse structure.

Several options have been proposed for solving the problem. These include the following: (a) removal of approximately 2,000 cubic yards of contaminated soil to sealed vaults; (b) chemical fixation of the soil and (c) covering the area with asphalt to retard further leaching of arsenic into the groundwater. The estimate costs of these solutions range from $2,500 to $25,000.

Long-Term Pollution Problems Associated with Creosote Production in St. Louis Park, Minnesota

For 50 years, Reilly Tar and Chemical Company and Republic Creosoting Company operated on an 80 acre site in St. Louis Park, a western suburb of Minneapolis. Reilly Tar and Chemical refined coal tars to produce creosote, and Republic Creosoting then used the material to treat wood products. While the operation supposedly included discharge of waste products into a ponding area on the property, there were apparently numerous cases of spills, leaks, pipeline breaks, and burial of wastes over the year.

The site has a long history of pollution problems. As early as the 1930's, some drinking water wells in the area were closed due to a tarlike taste. In 1969, low levels of possible carcinogens were found in a groundwater investigation for the City. The Minnesota Pollution Control Agency ultimately brough suit against the generators in 1970, and in 1971 the operations were closed down.

Several years of study have revealed the extensive contamination that the St. Louis Park plant has caused. On the site, analyses have documented the presence of phenols and three polynuclear organics — phenanthrene, chrysene, and pyrene. Low phenol concentrations have also been found in wells further than one mile off the site. Certain drinking water supplies have already been closed due to the capability of pollutants to migrate with the groundwater flow.

St. Louis Park purchased the property in 1973 with plans to conduct a cleanup operation, but the decision as to who will pay has not yet been settled. In September of 1978, the County went to court in an attempt to obtain payment for cleanup from Reilly Tar and Chemical. The actual costs involved have only been roughly estimated, and are based on a number of assumptions. To date, in excess of $500,000 has been spent by the City and State on investigative studies and in addition, the city has incurred costs of more than one million dollars for various mitigative measures including the capping of wells and excavation of contaminated materials.

Final cleanup may involve from $20-200 million, depending upon the extent of mitigation and the remedial methods chosen. Remedial measures would include the excavation and removal of contaminated soil, the closing of a fourth well, and the construction of new wells to service the area.

Dioxin Poisoning Caused by Improper Waste Disposal in Missouri

In August, 1971, a six-year old girl suffering from an inflammatory reaction of the kidney and bladder bleeding was admitted to a Missouri hospital. A significant clue to the origin of her illness was the fact that she lived on a farm where many animals had recently died. The animals, including horses, cats, dogs, and birds, developed a mysterious fatal illness shortly after the spraying of waste oil on the farm's horse arena as a dust control measure. The spraying had take place in late May, 1971, and the child had frequently played around the horse arenas during the summer. Birds died within three days of the spraying and the first horse died four weeks later. A total of 63 horses ultimately died, and toxic illness of varying degrees affected ten people, who experienced symptoms of diarrhea, headaches, nausea, polythralgias, and persistent skin lesions.

Soil samples taken from the arena revealed the presence of dioxin, one of the most toxic chemicals known. Dioxin is a by-product of the manufacture of a herbicide, which had been manufactured locally until 1969. Dioxin was subsequently produced as a by-product of the manufacture of trichlorophenol and hexachlorophene by Northern Eastern Pharmaceutical and Chemical Co., a subsidiary of Syntex Agribusiness Inc., at the same site. Residues containing a high concentation of dioxin had been held in a large storage tank on the site.

In 1971, the Bliss Waste Oil Co. had contracted to remove the residues from the storage tanks, which led to the subsequent contamination of the waste oil which Mr. Bliss sprayed in the horse arenas.

The estimated total financial loss, based on filed law suits, is close to $500,000. This amount includes medical expenses and cleanup costs, as well as the loss of business and subsequent sale of one of the horse arenas. Horses exposed to the contaminated arena continued to die as late as 1974.

Although Syntex disclaimed legal responsibility for the inherited residues in the storage tanks, the company has volunteered to pay for the safe disposal of wastes. Several alternative disposal methods have been considered, including incineration at sea.

Petrochemical Contamination of the Cohansey Aquifer in New Jersey

Dumping of approximately 6,000 drums of liquid chemical wastes in the abandoned Reich chicken farm, Dover Township, New Jersey, has resulted in the chemical contamination of the Cohansey Aquifer, which is a heavily used aquifer in the New Jersey Coastal Plain.

The wastes, which included a wide variety of petrochemicals with toxic, flammable, explosive, and oxidizing properties, originated at the Bound Brook, New Jersey plant of the Union Carbide Corporation. Although Union Carbide had contracted with a private hauler to dispose of the wastes at a landfill, the drums were instead dumped on the abandoned farm site.

The drums were dumped between August and December of 1971. In early 1974, evidence of contamination of local wells appeared. The incident has resulted in the permanent loss of 148 private supply wells, and contamination of an unknown portion of the Cohansey Aquifer. While no public health problems appeared to result from this incident, the possibility of chronic health effects could not be evaluated.

Direct costs of this incident total over $400,000. These costs include the cost of removal of drums, sampling and analysis, and drilling of new wells.

Indirect costs, such as the cost to residents in inconvenience and devaluation of property, the time spent by Federal, State and local authorities in dealing with the problem, and possible future spread of the contaminated zone, have not been calculated.

Drums and contaminated soil were excavated and hauled away for disposal.

Threat to State Groundwater from Industrial Disposal Facility

An industrial landfill operated in South Brunswick, New Jersey has been linked to groundwater contamination problems. A number of residential wells adjacent to the facility have been contaminated, at least one of which has significant levels of chloroform, toluene, xylene, trichloroethane and trichloroethylene. Toxic substances may be moving toward the Foresgate Water Company which supplies water for Monroe Township. Although no immediate health effects have been reported yet, these substances render the water unsuitable for drinking. The cost of extending the municipal water line to affect six residences has been estimated at $300,000.

After an extensive investigation by the State Department of Environmental Protection and the U.S. Environmental Protection Agency, the J.I.S. Industrial Service Company was cited as the source of the underground pollution. In 1975, the state ordered the facility to stop accepting petroleum products, hazardous substances and all other liquid and solid wastes. It also ordered J.I.S. to submit plans for the removal of previously disposed material and/or the containment of leachate.

Jackson Township, New Jersey

The municipal landfill was licensed by NJDEP in 1972 to accept sewage sludge and septic tank wastes. However, chemical dumping allegations have been confirmed by chemical analysis of underlying groundwater. The landfill was recently closed to all wastes.

The landfill abuts the Ridgeway Branch of Toms River, and overlies the Cohansey Aquifer, the sole source of drinking water for the surrounding residential community. The soil is composed of porous sands and no natural or manmade liners exist. Over 100 residences used private water wells within 1.5 miles of the site. Water is now trucked to the community.

Approximately 100 drinking water wells surrounding the landfill have been closed because of organic chemical contamination. Analysis of water samples has shown the presence of chloroform, methylene chloride, benzene, toluene, trichloroethylene, ethylbenzene and acetone. Residents claim that premature deaths, kidney malfunctions, kidney removals, recurrent rashes, infections and other health related problems are due to the contamination of their water supplies by the landfill. Although use of the water wells has been banned, residents are still using well water for bathing, dishwashing and irrigation because no other dependable source of water exists.

The State is taking legal action against the Township. Recently, the landfill was closed. Residents were drinking the well water until November 1978 and had been bathing with the water until January 1980. A $1.2 million water system is planned for the affected residents. However, the Township anticipates the 100 residents will repay the state low interest loan. No actions are being taken to restore groundwater quality.

Spilled Wastes Damage the Kernersville, North Carolina, Reservoir

On the night of June 3, 1977, unknown persons entered the Destructo Chemway Corporation property and opened the valves of six large storage tanks, spilling approximately 30,000 gallons of wastes onto the ground. Chemway Destructo operates an incinerator at the site, receving liquid wastes from such companies as Allied Chemical and Proctor Chemical. The company did not have a Spill Prevention, Control and Countermeasure (SPCC) plan as required by law, and the chemical wastes very quickly drained from the site to a small stream 1/4 mile away. From there the chemicals moved into the Kernersville Reservoir, located 1 1/2 miles from the site.

A local resident noted the unusual odor from the spill and called the police, who subsequently activated the North Carolina Department of Natural and Economic Resources, the National Guard and Civil Defense agencies. Approximately 1,000 people were evacuated from the immediate area of the spill.

Dead fish were observed floating on the 22-acre reservoir, which served as the primary water supply for Kernerville. Analysis of the water showed the presence of fuel oil toluene, allylether, xylene, dichloroethane, and trichloroethane, prompting the State Department of Health to declare it unsuitable for drinking. Fortunately, a smaller reservoir was available to serve as a backup water supply, although some curtailments of water use were necessary until Kernersville was able to obtain supplies from adjacent towns.

Total impacts of the incident are difficult to assess. Almost one-third of the chemicals were eventually recovered for incineration. Another 32,000 cubic feet of contaminated soils were removed and landfilled at Destructo Chemway. In the cleanup process three men were hospitalized for corneal ulcers from exposures to the chemical fumes. Approximately 90% of the fish in the reservoir were killed. The city decided to abandon the use of the reservoir for drinking water. Construction costs for a larger water main to neighboring supplies were two million dollars. Textile mills in the area had to pay for tanker delivery of water and for process modifications to conserve water. Layoffs and cutbacks in working hours also resulted from the water shortages. No known health effect from exposure to the chemical fumes were observed among the local residents.

Waste Industries, Inc., New Hanover County, 1980

The Flemington landfill a now inactive site, is a 70 acre tract in New Hanover County, North Carolina, which has accepted municipal as well as industrial wastes from 1972 to 1979. The Flemington landfill is located in close proximity to at least thirty-three residential wells and ten commercial wells and overlies an aquifer which serves these wells. The land in the vicinity of the site is composed of a variety of porous sands through which water and contaminants can easily pass.

Waste material disposed of at the Flemington landfill has leached into the groundwater underlying the site and has contaminated the aquifer to such an extent that the water in the domestic wells of several households has been rendered hazardous for human consumption and other uses. The groundwater passing beneath the site may eventually contaminate the waters of the Cape New Fear and Northeast Cape New Fear Rivers, which are within one mile of the landfill.

The following chemicals have been detected in the residential wells at levels sufficient to affect adversely human health and the environment: tetrachloroethylene, benzene, vinyl chloride, trichloroethylene and 1,2 - dichloroethane, all carcinogens, as well as methylene chloride and lead. In addition, the presence of chlorides, dichlorophenol, chlorobenzene, iron, manganese, phenol and zinc, have rendered the water unfit for human consumption due to extreme bad taste or odor.

The EPA has spent $25,000 in ascertaining the nature and extent of the groundwater contamination and has filed a complaint in U.S. District Court in order to affect remedial measures.

Summit National Liquid Services, Portage County, Ohio, 1980

A liquid industrial waste treatment and disposal company is located on an 11 acre site in Portage County, Ohio and has been in operation since 1973. The site is within 200 feet of residential areas and rain water runoff carries chemicals and oils from the site to a tributary of the Berlin Reservoir which is used to augment a public water supply for the Mahoning Valley. Currently, several thousand leaking barrels, a 300,000-gallon cracked and leaking concrete storage tank, and other vessels of varying sizes are being used to store wastes including acetone, MEK, toluene, latex, oils, hexachlorocyclopentadiene and mirex.

The site presents a fire hazard from the improperly stored barrels as well as a source of soil and groundwater contamination. Also present is the possible contamination of the drinking water in the reservoir.

The site has been closed since 1978 by orders of the Ohio EPA and is currently being cleaned. The cost estimated for transportation and disposal of the present inventory of wastes is $360,000 and does not include funds for analysis, special handling, excavation or reclamation. In addition, mitigating measures taken to secure the site are estimated to cost $1,762,000. These costs are currently being paid by the State of Ohio.

Chemicals and Mineral Reclamation, Inc. Cleveland, Ohio, 1980

Chemicals and Minerals Reclamation, Inc. occupies about 8.4 acres in downtown Cleveland, Ohio near the mouth of the Cuyahoga River and is engaged in treating and storing solid and hazardous wastes. Approximately 4,000 55-gallon drums containing hazardous wastes are stored in an old weatherbeaten warehouse with an additional 2,000 drums nearby.

Numerous inspections of the property since March of 1979 by the U.S. EPA, the Cuyahoga County Health Department and the Ohio EPA have found many violations of the Municipal Code, strong chemical odors, puddles of spill residue, hardened material in the aisles between the drums, and leaking drums. The labels on the drums and samples of materials in the drums identified the following chemicals: acetic acid, acetone, antimony oxides, asphalt, butyl acetate, butyl alcohol, chromic acid, heptane, lubricating oils, methyl alcohol, methylene chloride, methyl ethyl keytone, paint and miscellaneous solvents, perchloroethylene, resin/rubber solvent, toluene, 1,1,1-trichloroethane, xylene, zinc chloride, ethanol, ethyl acetate, hexane, ethyl benzene, 3-methyl hexane, tetrachloroethylene, trichloroethylene, 3-methylpentane, 2-methyl-1-pentene, 2-methylpentane, 2,4-dimethylpentane, 2-methylpropanol and 4-methyl-2-pentanone.

The Chemicals and Mineral Reclamation facility is located only 1/2 mile from the downtown area where thousands of people could be subjected to contaminated fumes if a fire were to occur.

Chem-Dyne Corporation Hamilton, Ohio, 1980

The Chem-Dyne Corporation occupies approximately 4 acres in downtown Hamilton, Ohio. It is bounded on one side by an impounded stream which empties into the Great Miami River. On other sides are the residential and business districts of the town, as well as several recreation areas.

Thousands of 55-gallons damaged, rusty and leaking drums and seven large tanks store over 1 1/2 million gallons of hazardous chemical wastes on the site. Since 1976, the site has received shipments of hazardous wastes where they have been transferred between containers or mixed in open pits. Among the chemicals which have been identified as being stored, mixed or disposed of at the site include: 1-dichloroethane and benzene, both carcinogens, as well as phenol, acetone, xylene, toluene, hexane, 1,1,1-trichloroethane, dichlorobenzene, napthalene, cyanides and arsenic.

The site presents an imminent fire hazard from the improper storage of the flammable organic materials. Runoff has shown the presence of toxic chemicals which have leached into the soil and possibly to the groundwater. In addition to foul odors from the site there have been instances of periodic sickness of nearby workers and occasionally of people using the nearby recreation facilities.

The site is currently in litigation but the assets of the corporation may not cover the clean-up costs. The State of Ohio or the United States may have to furnish the necessary funds.

Improper Disposal of Hazardous Wastes Results in Potential Health Hazard at a Public Park
Neville Island, Pennsylvania

The Ohio River Park site was closed indefinitely in the spring of 1979 when public health officials expressed concern that there may be public health dangers from wastes buried at the site nearly thirty years ago. The essentially completed park, located on the western tip of Neville Island, Pennsylvania, was donated to Allegheny County in 1976 by the Hillman Company via its foundation. The company is the parent for the now defunct Pittsburgh Coke and Chemical Company. Of the $3.3 million originally appropriated for site development, approximately $1.8 million has been spent; equal sums having been obtained from the County and the U.S. Department of the Interior. An additional $1.5 million was allocated for a pleasure boat marina.

Four acres of the site were reportedly, used as a municipal garbage dump from 1935 to 1945. In the early 1950's large quantities of miscellaneous industrial wastes were deposited extensively. It is not clear exactly which companies, both on and off the island used the Pittsburgh Coke and Chemical property as a waste disposal site. However, due to the nature of their product, two chemical companies, Pittsburgh Coke and Chemical and the Neville Chemical Company had the most difficult problems with waste disposal.

During park development, workers complained of noxious fumes emanating from certain areas of the park. An outside consulting firm was hired to conduct a field investigation. Among the chemicals uncovered at the park were benezene, phenols, cyanide, mercury, coal tar residues, and parathion. Workers who built the Ohio River Park reported an unusually high rate of health problems ranging from eye irritation to blood in the urine. In a preliminary study conducted by the Allegheny County Health Department, twenty-six percent of the respondents cited health problems while working at the park.

A recently completed study of remedial alternatives estimated that continued park closure with monitoring would cost $150,000 to $250,000. Development of a limited park along the relatively clean eastern section of the property would cost $300,000 to $430,000. Removal of contaminated wastes in order to rebuild the park as originally conceived is estimated to cost seven to twenty-four million dollars.

ABM Wade, Pennsylvania

In Chester, Pennsylvania, a chemical fire resulting in the hospitalization of firemen overcome by toxic fumes, brought another incident of hazardous waste management into the limelight. The fire occurred at the Wade Disposal Site, a three acre plot of land situated along the Delaware River in southeastern Pennsylvania. This site had received approximately 300 drums per week during its three years of operation, a total of nearly 15,000 barrels. Examination of the site revealed that only 1,000 of the 4,500 visible barrels appear to remain unruptured. The remaining 3,500 are broken and crushed with their contents spilled from their original containers. Drums found on-site carried the labels of numerous chemical companies including Dupont, Monsanto, Dow, Rohm and Haas, Jorden Chemical and Wentz Chemical.

Tank trailer disposal operations were also carried on at the site by the ABM company. Documented evidence indicates that trailer tankloads of liquids could have been drained on the property via a street drain and a concrete sump, 250 feet from the Delaware River. Presently, seven tankers, some of which may be full of hazardous liquids, still remain on the site. A State Department of Environmental Resources sampling program revealed concentrations of heavy metals which substantially exceeded drinking water standards — chromium, copper, nickel and lead. In addition, numerous volatile organics were detected at the Wade-ABM site including methacrylic acid, which is lethal at a five percent vapor concentration with a thirty minute exposure. A variety of aromatic hydrocarbons were also identified that are frequently skin, eye and respiratory irritants with short-term exposure. Over the long-term, these toxics cause central nervous system depression, and depending on the compound hepatic, renal and bone marrow disorders. They have also been recognized as known and suspected carcinogens.

Minimum required costs to clean up the Wade Site were estimated at 1.25 million dollars. This total would include $650,000 for disposal of material located above the natural grade and $600,000 for disposal of "hot spots," areas deemed highly contaminated with hazardous wastes, as well as contaminated soils below grade. Furthermore, additional cleanup activities also may need to be undertaken. Remedial measures are being taken to prevent further runoff or discharge from the site.

Hardeman County, Tennessee

Velsicol Chemical Corporation of Memphis, Tennessee is the owner of approximately 242 acres in Hardeman County near the Town of Toone, Tennessee. Between 1964 and 1972, the Company trucked about 300,000 55-gallons drums of their waste material from a pesticide plant in Memphis to the site for disposal. The company's waste residue including endrin, dieldrin, aldrin, and other pesticides, were buried in unlined trenches over about 50 acres of the property.

The USGS has been investigating the area since 1966, due to questions raised about the threat posed to groundwater supplies. A 1967 report already noted pollution of a nearby stream and the shallow water zone. At that time, no local domestic well was contaminated. However, subsequent to the 1967 report, the dump was enlarged to twice its original size, from approximately 20 acres to 45 acres.

A current study by the USGS indicates more extensive problems in the site area. As predicted, the water-table aquifer has also become polluted and contaminants have reached the wells of nearby residents. Some of the organic compounds are estimated to be migrating at a minimum rate of 80 feet per year in the water table zone. Rough cost estimates to handle the contamination problems include about $120,000 for the establishment of a water supply system from Toone to nearby homes, and $741,000 to set up and operate a monitoring program. Other estimated clean-up costs range from to $6 million to over $165 million, depending upon the extent and methods of the operation. A class action suit by local citizens for $2.5 billion has been filed against Velsicol.

Contamination of Surface Water Via an Alkali Processing Plant in Saltville, Virginia

From 1895 until 1972, an alkali processing plant was operated on the banks of the North Fork of the Holston River in Saltville, Virginia. The facility produced a variety of alkali products, including hydrazine, dry ice, soda ash, bicarbonates, fused ash, lime soda caustic, chlorine, electrolytic caustic, anhydrous caustic, and liquid carbon dioxide. At the same time, waste disposal from the various processes was via a series of lagoons, with effluent discharged directly to the North Fork. The plant currently owned by the Olin Corporation, has been shut down since 1972, apparently due to a variety of economic reasons.

Total dissolved solid concentrations in the river have frequently exceeded the 500 mg/l stream standard, and chloride concentrations are also high. The primary concern, however, is the levels of mercury found in the North Fork of the Holston from the site of the old chlorine plant. Three fourths of the fish samples taken in July 1976, at six stations along the nearly seventy miles of river showed concentrations at least twice as high as the FDA action level. This is evidence that the contamination extends down the river to the TVA Cherokee Reservoir one-hundred miles from Saltville, Virginia. Tennessee Health Department officials imposed a ban on fishing in the North Fork of the Holston in 1970. To date, no mercury related illnesses have been reported. Mercury continues to enter the Holston both from the site of the old chlorine plant and from the two of six big "muck ponds" which were used for disposal of the primary waste stream from the Olin complex. The grounds in which the "cell building" once stood contain, according to an Olin consultant, some 220,000 lbs. of mercury.

Several corrective actions have already been taken, including grading and construction of erosion control structures, along North Fork bank at a cost of $40,000. The State of Virginia, EPA, TVA, Oak Ridge National Laboratory and Ohio participate in a task force to monitor progess of cleanup. A rough estimate of ultimate upgrading costs range from over $4 million to greater than $23 million. The lower estimate would involve measures to minimize surface and groundwater intrusion through the pond and chlorine plant site, and remove significant portions of mercury from the river system. The higher estimate would remove mercury wastes from the chlorine plant site and larger quantities of mercury from the river system.

SECTION 2

ABSTRACTS DESCRIBING DAMAGES AND THREATS POSED BY HAZARDOUS MATERIAL SITES

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ALABAMA

Warrior River, Alabama

In 1972 more than one million bluegill fish were killed as the result of the dumping of a pesticide into the Warrior River in Alabama. A private contractor was believed responsible for the incident.

fish kill
pesticide

Alabama, 1970

In 1970, 51,000 acres of waters were closed due to mercury contamination, including the Pickwick Reservoir and impounded tributaries of the Tennessee River, the Tombigbee River (between Jackson Lock and Dam and the Mobile River), the Mobile River, and the Tensaw River system. Sport fishermen also were warned not to eat fish from these waters. Restrictions continued until May 1975. Several industrial sources were believed responsible for dumping the substance into the State's waters, including the Olin Corp. and the Geigy Chemical Corp.

mercury, fish,
surface waters

Anniston, Alabama, Kelvar Waste Site

In 1973 Southern Metal Processing Company contracted with DuPont's Richmond, Virginia plant for removal of wastes containing acids and heavy metals. Over the following year approximately 10,000 drums were accumulated. In 1976 the stored containers were found to be leaking, and polluting surface waters. In 1976 a fire at the site injured two firemen. DuPont assumed responsibility for the site and removed the drums at a cost of $650,000. The acid saturated soils were treated with lime and graded. EPA Region IV has requested that the State of Alabama assume responsibility for monitoring the site.

acids, heavy metals
surface water,
human health

Decatur, Alabama

In 1954, approximately 200,000 pounds of coal tar was spilled or dumped into a barge unloading area connecting to the Tennessee River. The bulk of the material is still on the river bottom. The coal tar occasionally causes an oil sheen. In 1977 and 1978, EPA sampled and analyzed water and river sediment.

coal tar, creosite
surface water

Decatur, Alabama Fly ash was hauled by private transporter to the Johnson Landfill near Trinity, Alabama for disposal. The fly ash was used on one of the roads leading through a rural area to the landfill. Several tons of this material was piled beside the road. Analysis showed levels of cadmium and chromium in the fly ash. Similar metals have been found in a local residential (groundwater) well and monitoring is continuing. The company is under order by the State to remedy the situation.	cadmium, chromium drinking water wells
Decatur, Alabama Sludge from a company's waste-water treatment facility has been disposed by surface application on a tract of property just south of the plant. EPA analysis of samples of a well located on plant property showed organic contamination. The	organics drinking water wells

well supplies drinking water to the resident of a house owned and leased to the occupant by the company. Due to concern over contamination of the groundwater, the company will not renew the leases on seven homes in the vicinity of the contaminated well. Additional sampling has been done and the company, State and EPA officials are working to locate the source of contamination.

Blount County, Alabama

Numerous dump sites (five visited by EPA) exist in an abandoned strip mining area. Wastes consists of oily sludge containing heavy metals dumped by unknown persons. State solid waste agency thinks waste is coming from Birmingham industrial area. State is investigating.

oily sludge,
heavy metals

Redstone Arsenal, Alabama

Large quantities of PCB's and DDT mixed with soil have been detected near the old Olin Chemical plant at Redstone Arsenal which was shutdown in 1971. Storm water runoff has carried DDT to the Tennessee River where it remains in the sediment and water. Levels up to 400 parts per million of DDT have been detected in fish. Several federal agencies are developing a remedial plan which may include removal of the DDT contaminated soil for burial in a secure chemical waste landfill. Monitoring wells to insure groundwater protection may be installed around the disposal site. Public water supplies in the area have been tested and do not show DDT contamination.

PCB's, DDT
surface water, soil

Blount County, Alabama

Waste oil pits have been found in an abandoned strip mining area. The oily sludge contains heavy metals. The source of the waste oil is unknown.

waste oil,
heavy metals

Alaska

Red Devil Mine, Alaska

Mercury contamination from mercury mine tailings ponds may be entering Red Devil Creek which is a tributary to the Kuskokwim River. Studies in other areas have shown that, over time, elemental mercury is converted to the highly toxic methyl mercury by bacteria. Methyl mercury then bio-accumulates in aquatic life, rendering fish unfit for consumption. The Kuskokwim River is an important food source to the local population. EPA is currently evaluating data.

mercury
surface water

ARIZONA

Globe, Arizona, 1980

asbestos
air & soil

There are four abandoned asbestos mills which are full of asbestos dust, and should be dismantled. These are not closed, and are easily accessible by children. In addition, on the site of one closed mill, the tailings were leveled, and the area subdivided. There are 25 families living in this area, with high exposure to asbestos dust. The state is currently handling the problem. Cleanup of the site is in process and the state is satisfied with the progress being made. Cleanup include covering subdivision lots with clean fill and seeding to lessen the asbestos exposure. Estimates for clean up costs are in the range of from $1 to $5 million. The latter figure would include purchase of the 25 homes in the area.

Phoenix, Arizona, 1980

heavy metals
groundwater

A series of old sand and gravel pits have been used as municipal dumps. At least one was used for disposal of hazardous wastes. The dumps are operated by the City. When it rains, the pits are almost filled with water, connecting with groundwater which is the Phoenix drinking water supply. The city and EPA are currently monitoring to determine the path of leachate, and the amount of contamination. So far mostly heavy metals have been found, in high concentrations. EPA is also assisting in finding a new site for municipal wastes. Hazardous wastes which previously went to the 19th Street site, (now closed) are being transported, with manifests, to a temporary disposal site. The manifests should give an idea of the types of wastes that formerly went into the 19th Street site. There are some drinking water wells about one mile from the site.

Phoenix, Arizona, 1980

A fabricating factory discharged groundwater potentially hazardous materials into percolating ponds. The ponds were breached by floods last year. There are seven drinking and irrigation wells within one mile of the ponds. It is believed the ponds are highly permeable and that the material is migrating into the groundwater. No cost estimates are available on damages at this time.

ARKANSAS

Jacksonville, Arkansas

Since 1948, a facility now owned by Vertac manufactured chlorophenoxy herbicides including 2,4-D and 2,4,5-T. Chemical wastes, such as dioxin and chlorinated hydrocarbon pesticides, are buried at several locations. Traces of dioxin were discovered in the sediment of a nearby creek and a downstream bayou; both of which have been quarantined by the state health department. Soil contamination has been documented. The cost to cleanup the site may exceed $4 million.

dioxin,
pesticides
surface water,
air pollution

West Memphis, Arkansas

The Gurley Oil Company operated pits for disposal of oily sludges for a waste oil recycling operation. The 3.5 acre site is now abandoned and subject to flooding. Oil releases have been controlled by pumping after each rain. Estimated cleanup is expected to be between $700,000 and $1,000,000. The sludges contain PCB's, cadmium, chromium, lead and zinc.

PCB's, heavy metal
surface water

Newport, Arkansas

The Lambert Seed Company maintained seven large evaporation ponds in which dilute surfuric acid was held. In 1976 Newport Air Force Base reported increases in the sulfate levels of their drinking well waters. It was established that the Air Base derived 25% of their drinking waters from the aquifer underlying the ponds. A program to pump the contaminated water from the aquifer by the use of three interceptor wells has resulted in the decline in sulfate levels of the Air Base's drinking water. Leaking ponds were identified and have been replaced with PVC-lined ponds.

sulfuric acid
drinking water

Fort Smith, Arkansas

The Industrial waste control site was closed in 1978. The site had accepted up to 22,000 cubic yards of oils, plating waste and organics. Surface seepage has occurred to a neighboring property. The site is now being assessed for remedial and cleanup actions.

oils, plating wastes,
organics
land

Magnolia, Arkansas

The Arkansas Pollution Control and Ecology Dept. named the Dow Chemical Co. site in Magnolia as one of the 10 worst pollution problems in Arkansas. A pond containing spent brine is leaking and the Dept. is concerned about possible water and land pollution.

fluorides
surface water

CALIFORNIA

San Joaquin Valley, California, 1979

An ongoing sampling study which was initiated in June, 1979 by the California Department of Health Services and County health departments throughout the San Joaquin Valley is finding widespread contamination of water supplies with high levels of DBCP. To date, in the San Joaquin Valley, approximately 29 wells on large municipal systems (greater than 200 hook-ups) have been found to have DBCP levels in excess of 1.0 ppb, with an additional 150 wells having levels exceeding 0.05 ppb.

DBCP
drinking water wells

Lathrop, California, 1980

In the vicinity of Lathrop, Ca., one well of the Lathrop County Water District System has been shut down due to DBCP contamination. Water is currently being supplied to affected municipal customers from the clean wells in the county's system. The Federal Government and the State of California filed a suit against

DBCP
drinking water wells

Occidental Chemical seeking injunctive relief and civil penalties. No federal state or local monies are known to have been spent to provide for the alternative water supply. The present estimate for clean up costs is as much as $15 million.

Rancho Cordova, California,1979

The Aerojet General Corporation along with Cordova Chemical Company, a subsidiary, occupies 8,000 acres south of the American River, a tributary of the Sacramento River. The Aerojet company discharged waste streams directly into an open pit. Sulfates, pesticides and heavy metals from Cordova Chemical have been found in an old dredge pit as well as in the groundwater to the pit, where these chemicals were dumped over a 2-year period. TCE, other organic solvents, and perchlorate from Aerojet has also been found off-site. Out of approximately 50 private wells sampled within a half male of Aerojet's property line, about 25-30 have been found to have some level of contamination from organic solvents. Also, there are several unlined surface percolation ponds and defective lined ponds receiving wastes from Aerojet and Cordova Chemical. The State of California has brought suit against these companies seeking remedial actions.

TCE, pesticides
heavy metals
drinking water wells

San Gabriel Valley area of Los Angeles County, 1980 In this area, 56 municipal wells within 18 water supply systems have been shut down to date due to excessive levels of TCE contamination. The immediate effect has been the reduction in the number of available clean wells in the area, however, all users are being supplied with water from clean wells within each system. State and county agencies have begun an investigation to define the full extent of the problem and to determine the source of the pollution. No federal or state money has been spent to provide alternative water supplies. No estimate for cost of correction is available at this time.	TCE	drinking water wells
Riverside County, California The Stringfellow class I Disposal Site landfill contains a wide variety of industrial wastes (primarily spent acids, caustics), totaling approximately 32,000,000 gallons in 19 years. Contamination of groundwater has occurred from leachate and surface run-off. The State Legislature in 1978 appropriated $370,000 for the closure and maintenance of the site by the Santa Anna Regional Water Quality Control Board. Final closure is estimated to total $1-2.5 million. A total of $290,000 was spent from CWA 311 funds.	Organics, acids	ground and surface waters

Visalia, California

A coal tar waste tank cracked and leaked for four to five years, contaminating soil and groundwater in the vicinity of the spill with pentachlorophenol. Apparently the contamination is confined. Southern California Edison, which assumed all responsibility for the spill, has paid $2,000,000 for cleanup.

organics
land & groundwater

Cabazon Dump (Murietta), 1972

Instead of properly disposing of some drums containing unidentified residues, a disposal company dropped them at a dump located in Cabazon. A heavy rain unearthed the drums, which gave off poisonous gases and contaminated the water.

toxic substances
air & surface water

Mather Air Force Base, 1979

Officials at Mather Air Force Base disconnected a well after discovering traces of TCE, a chemical solvent suspected of causing cancer in humans. Five tests over 30 days had found between 16.5 and 30.2 parts per billion of TCE in the wells, which was used by about 75 employees.

TCE
drinking water wells

McLellan Air Force Base, 1980

Several wells on base and off base are contaminated with TCE and other organics. Some of the wells have been shut down. The problem may be from old industrial sludge pits.

TCE, organics
drinking water wells

Fullerton, California

This is an eight-acre site that was used for dumping an estimated 50,000 tons of World-War II era chemical wastes (priminarly sulfuric acid and heavy metals). The area is bounded by residential neighborhoods to the south and east, a golf course to the west, and by land zoned for residential development to the north. The wastes are seeping to the surface near homes and near the edge of the golf course. State agencies are working with the current owners of the land to develop a clean-up plan.

sulfuric acid sludge
heavy metals

Barstow, California

Ground-water contamination extends downgradient 4 miles from the source. A well field is threatened. Complaints of well contamination began in 1952. Several wells were abandoned. Previous investigations traced the contamination to local municipal and industrial waste disposal. A study initiated by the U.S. Geological Survey to evaluate the groundwater degradation in this area found ground water degraded by (1) natural groundwater inflow, (2) industrial and municipal waste disposal from several sources, and (3) irrigation-return water. Data suggest two plumes of contamination, an old plume near the base of the aquifer and a shallow plume produced by more recent contamination. No remedial action was reported.

leachate
groundwater

COLORADO

Commerce City, Colorado, 1980

The present owner of the site, formerly the site of the Woodbury Chemical Company, is the Rock Island Railroad, which is in receivership. Woodbury Chemical Company is defunct. The company formulated pesticides on the property. In the late 1960's a major fire occurred on the property contaminating the area with high levels of organo-chloride and organo-phosphate pesticides. Data indicates that the ground surface, over eleven years after the fire, still is highly contaminated. Even the relatively degradable organo-phosphate pesticides are present in significant amounts. Unconfirmed reports state that fire ruble in places may be buried to depths of 15 feet. Surface drainage of rain water has been analyzed and found to contain a number of pesticides. No data on ground water are available. On warm days there is a pesticide odor on the site.

pesticides
soil,
surface
water

Jefferson County, Colorado, 1980

The Aerr Company stores, treats and disposes of chemical wastes. After a fire at the site firefighters will not return to the site because of the hazards present. There is a probable hazard to workers on the site. Also present is the problem of runoff onto neighboring lands.

cyanide, chemicals
human health

Boulder, Colorado, 1980

The Marshall landfill has two sections; one has been closed since 1965, and the other is still active. Many types of wastes were accepted, including industrial liquid wastes, and perhaps hazardous wastes, including PCB's. The problem which exists is that leachate from the landfill flows into the Community Ditch which is sometimes used as a potable water supply for the town of Louisville. Also, there may be bontamination of the aquifer under the landfill.

toxic chemicals
drinking water

Lafayette, Colorado

Seventeen barrels of pure PCB's were discovered to have been stored on a local farm for 10 years. A state epidemologist recommended that a woman resident temporarily stop nursing her one year old son after hazardous levels of PCB's were discovered in her breast milk; soil in the vicinity of the barrels was also contaminated. The affected family has since relocated. The PCB has been recontainerized and moved to a secure storage area. The ground contamination still exists.

PCB's
Soils, human health

L.C. Corporation, Denver, Colorado, 1979

Facility disposed of acid wastes by placing them in plastic lined storage pits near Sand Creek. Acids were partially neutralized, but storage pits are still highly acidic. The potential problem of toxic or hazardous materials leaking from the pits into Sand Creek exists. As the result of a settlement, clean up is taking place under supervision by a State court. The company is paying for the clean up.

acid, toxic material
surface water

65th and Huron (BFI, Inc.), Colorado

Methane gas from an active 90 acre landfill site in central Adams County exploded and destroyed a home in January 1980. Subsequent investigations revealed the site contained 3.4 million yards of domestic refuse and 30-40% explosive gas by volume. Lateral migration off-site was found at the south-central portions of the site. Two houses, including the one where the explosion occurred, were found to harbor heavy methane gas concentrations inside and adjacent to the structures. Following the accident, both homes were vacated and a power extraction and control system are now being installed.

methane gas
explosion

Denver, Colorado, 1943-1975

The Rocky Mountain Arsenal was established in 1943 for the production of chemical warfare agents. In the late 1950's Shell Chemical Company leased most of the industrial facilities for the production of insecticides: from 1943 to 1957 unlined canals conveyed liquid chemical wastes to unlined holding ponds for storage; waste liquids moved directly into the ground water. Severe contamination of the aquifer resulted in widespread well contamination. In 1975 the State Department of Health issued a cease and desist order against the Army and Shell Chemical to stop polluting surface and underground water in the area.

pesticides
ground water

Lowry Landfill - Denver, Colorado

This landfill receives a major portion of the industrial wastes in the Denver metropolitan Area. There is data that indicates groundwater contamination. The landfill is not operated consistent with good practice. Municipal sludge is spread at rates well above the recommended levels. Governor Lamm has expressed concern over the facility and has appointed a study commission to investigate and present recommendation. EPA Region VIII is in the process of documenting conditions at the facility.

industrial
wastes
groundwater

48th and Holly (Landfill, Inc.), Colorado

Two separate methane gas explosions at a 100 acre landfill in southern Adams County in June 1977 killed two utility workers and injured four fireman. A lawsuit was filed shortly after the accident, and a preliminary hearing is scheduled for April 1980.

methane gas
explosion
death/injury

The site was landfilled with an estimated 7,000,000 cubic yards of domestic refuse during the late 1960s and early 1970s. Current methane testing today indicates that the landfill contains 40-50% methane gas with extensive lateral migration of the gas off-site, both in a northerly and southerly direction up to 700 feet. Current tests show that several buildings adjacent to the site still contain methane gas in concentrations up to 35%. Site monitoring is underway and safety precautions have been observed.

CONNECTICUT

Ledyard, Connecticut

styrene
private wells

Six private wells became contaminated with styrene -- an aromatic hydrocarbon -- in 1962. An investigation revealed that styrene had been used to burn brush in clearing land for the housing development at which the wells became contaminated. Barrels partially filled with styrene had been buried at two different locations. The affected wells were within about 300 feet of the barrels. All known contaminating materials was removed from the ground. Activated charcoal filters were installed in the wells in 1962. Concentrations of styrene fluctuated seasonally and in response to precipitation. By 1964, no styrene was detected in any of the wells. New production wells were supplied to affected homes.

Canterbury, Connecticut

chemical waste

A private landfill has accepted 11,000 gallons of chemical wastes in the past several years. No information is currently available on contamination, but it is being investigated for both enforcement and 311 response.

Southington, Connecticut, 1967-1980

The Solvents Recovery Service engages in the distillation, recovery and disposal of industrial solvents in Southington, Connecticut. The handling, storage and disposal of hazardous wastes by the company has contaminated the groundwater around Southington causing the closure of three of the city's six wells. The following chemicals were found in two of the three wells at levels which may affect human health adversely: tetrachloroethylene, chloroform, trichloroethylene, 1,1,1,-trichloroethane, dichloroethane and carbon tetrachloride. In addition, during the early 1970's tests of soils and crops in the vicinity of the site showed very high levels of lead, reportedly from open burning of wastes at the site. EPA filed suit under RCRA in December, 1979 and is developing groundwater hydrogeological information as a basis for the case.

solvents, lead
drinking water wells,
air pollution

Plainfield, Connecticut, 1978

State police discovered 1700 barrels of chemical wastes illegally buried in two Plainfield gravel pits. Groundwater contamination was detected but there are no wells in the area. The owner of the site was fined $25,000 and is paying for site cleanup, estimated at $750,000.

chemical wastes
groundwater

Plainville, Connecticut

In July 1975, local officials discovered that one of the Plainville water company water supply wells was contaminated with industrial solvents, including trichloroethylene, chloroform and carbon tetrachloride. The Mott Metallurgical Co. in Farmington has been identified as the probable source of the solvents. Mott had previously disposed of its wastes in an underground dry well about 100 yards from the water supply well. The Mott Co. has since changed its disposal practices and the Plainville Water Company has discontinued use of the well.

solvents
drinking water wells

Sharon, Connecticut The Brookfield Chemical Company discharged various chemical wastes from its opertions into a dry well and septic tank on their property. By 1972, chemicals, including ethylene glycol, chloroform, benzene, and toluene leaked into the gound water and have been detected in residential and commercial wells in the area.	organics drinking water wells
East Haddam, Connecticut State Department of Health lab reports showed that two of six wells near Pioneer Products, Inc., had been contaminated with hydrocarbons. Pioneer had discharged untreated chemical waste for more than a year. In June 1979, State officials ordered Pioneer to cease its discharge, and to correct contamination that the discharge had caused.	organics drinking water wells

Bridgeport, Connecticut

The State of Connecticut hired Chem-Trol Pollution Services to remove 3,000-5,000 drums of chemicals from a boarded up warehouse owned by Chemical Waste Removal. The drums were discovered by the State police organized crime unit during a raid at the site. The cost of removal should total $250,000.

toxic chemicals

Canton, Connecticut

It was reported that solvent-type chemicals, including carbon tetrachloride, methyl ethyl ketone, trichloroethylene and chloroform, dumped by the former John Swift Chemical Co. between 1969 and 1972 have been found in eleven Canton wells. The estimated costs of extending water lines from nearby communities range from $145,000-$379,000. The State of Connecticut Department of Environmental Protection has ordered the dump site's current owners, Auto World Realty, to clean up the site.

solvents

drinking water wells

Torrington, Connecticut, 1979

Construction workers building a new shopping center uncovered a major asbestos dumping ground on the site formerly occupied by the Fitzgerald Gasket Company. Unprotected workers had been exposed to asbestos dust. The Company has remedied the problem, construction of the shopping center has resumed.

asbestos
air

Wolcott, Connecticut, 1974

Several domestic and industrial wells were found to be polluted with hydrocarbons and mixed solvents. A State investigator discovered that a local service station dumped or spilled gasoline into floor drains, which may have been connected to wells; workers at a local tool company were also found to be dumping solvents and oils onto the ground in back of a shop.

organics
groundwater

Bristol, Connecticut, 1980

A trucking company and middleman disposal firm are reported to be responsible for the disposal of 30,000-90,000 barrells at the Bristol landfill. Groundwater has been found to be contaminated with hydrocarbons. The

hydrocarbons
groundwater

State has issued an order to the city to develop a groundwater monitoring system. EPA has begun preliminary investigation to determine whether Federal enforcement vs. haulors or generators is appropriate. There are no water supply wells in the aquifier.

DELAWARE

Wilmington, Delaware

Rainwater and groundwater percolating through the Llangollen Landfill produced a leachate containing high concentrations of iron, chlorides, ammonia, heavy metals and dissolved organics. The leachate migrated from the site and in some places moved through a clay layer into the deeper Potomac aquifer used extensively in New Castle County for a water supply. The County has installed wells to intercept contaminated groundwater in order to prevent contamination of the public water supply wells at a cost of over $1 million.

heavy metals, org
groundwater

New Castle County, Delaware

leachate
public water supplies,
ground water

A large zone of ground water was contaminated. The ground water contamination was traced to the Llangolen landfill some 88 feet away. The landfill, which operated between 1960 and 1968, was originally a dump and received various unknown types of industrial wastes. When the landfill was operating, some of the clay beneath the site was removed for cover material, permitting movement of leachate to the underlying aquifer. About 100 wells or borings have been made to date to determine the extent of ground water contamination. Wells have been installed near the landfill to reverse the flow of ground water back toward the landfill, and they are pumping about 3 million gallons per day. Pumpage in both the water supply wells and the wells of the plant has been cut back, and water is obtained from other sources. An increase in the number of wells to intercept more leachate has been considered. An estimated 10 years would be necessary to renovate the aquifer adequately. Removal of the landfill may be necessary. About 30 private wells in the contaminated area have been replaced with a public water supply.

FLORIDA

Fanning Bayou, Florida

On October 13, 1976, a large fish kill occurred on the Fanning Bayou, Bay County, Florida, after 35,000 gallons of wastewater spilled from the McKenzie Tank Lines property. The wastewater contained chemical contaminants and tank washing solutions used in connection with the facility's tank truck cleaning operations. Officials reported unknown damage to other aquatic life.

fish kill, surface wat
chemical wastes

Tofs, Florida

The Woodbury Chemical Co., a bankrupt pesticide formulator, vacated its warehouse and left behind hundreds of barrels of DDT, Sevin, Malathion and Parathion. The company also left a pallet of broken and corroded bottles of concentrated parathion exposed on an outdoor loading dock.

pesticide

abandoned warehouse

Whitehouse, Florida

Seven pits covering seven acres were filled with waste oil sludge contaminated with PCB's and abandoned in 1968. In 1976 the level of one of the pits gave way and about 50,000 gallons of oily material was released to McGirts Creek. The EPA drained the liquids from the pits and covered the pits using a plan developed by the City of Jacksonville. The sludge covered in place was highly acidic and contained high concentrations of lead, zinc and copper. The material may need to be transported to a proper disposal facility. Other remedial actions are beind considered.

PCB's, lead, zinc,
copper

surface water

North Miami Beach, Florida

A drinking water odor incident led to an extensive investigation of the public water system. Several odor-causing compounds were isolated and appeared related to coal gas manufacturing residue disposal. Impacted wells were closed and the city added a powdered activated carbon system to resolve the problem. A total of nine wells were impacted. All of the wells are back in operation at present with further studies by the utility being carried out. No Federal or State funds were expended beyond those for consultation and preliminary sample analysis.

coal gas residue
drinking water wells

Hillsborough Co., Florida

Investigation of a landfill showed volatile organic groundwater contamination in samples from six wells. Of these six wells, one was a water supply well on the landfill site, three were private wells supplies serving single residences, and two were private supplies serving trailor courts qualifying as a community supplies. Upon release of the data indicating private well supply contamination, the County Health Dept. instituted

organics
drinking water wells

a bottled-water distribution program to impacted residents pending a long-term solution to the contamination.

GEORGIA

General Electric, Rome, Georgia

PCB's

surface water

The GE transformer manufacturing plant in Rome, GA is responsible for PCB contamination of sludge from the local sewage treatment plant, as well as contamination of the upper reaches of Lake Weiss. The plant had general surface contamination (PCB's) at the bulk off-loading facility. Plant employees contaminated with PCB's used the plant's shower facilities for clean-up, which contributed to contamination of the city sewers. PCB contaminated storm waterwater runoff entering combined sewers also contributed to contamination of the sewage treatment plant sludge. Tons of PCB contaminated sludge is now being hauled to Chemical Waste Management of Alabama. The GE plant is also responsible for a standing advisory against the commercial taking of bottom-feeding fish from the upper reaches of Lake Weiss due to the PCB contamination.

GUAM

Agana, Guam, 1974

High levels of several heavy metals (selenium, chromium, mercury) were discovered at the FENA water treatment plant. Old munitions dumps may have been the source of the toxic pollution.

heavy metals
public water

IDAHO

Yellow Pine, Idaho, 1980

Two large tailings piles remain at the Yellow Pine Mine site in north central Idaho. The tailing piles are located in a stream valley and are leaching arsenic and heavy metals. No significant environmental damage has yet occurred; however, grading and erosion control measures may be necessary to protect the stream.

arsenic
potential
surface water

ILLINOIS

Byron, Illinois

Three cattle died of cyanide poisoning which resulted from the unregulated land disposal of 3,400 55-gallon drums of industrial wastes on two farms, one of which had since been purchased by Commonwealth Edison. The drums of unknown origin had been deposited within the previous two years. Subsequent investigation discovered wildlife kills and vegetation damage. Cyanide was also found in 17 wells in the Byron area. Commonwealth Edison agreed to clean up its farm at an approximate cost of $209,000. The washes remained on the other farm.

cyanide
wildlife

Rock Island, Illinois

A landfill operation began in 1955 in a swampy area on the floodplain of the Rock River. Contamination of monitoring wells was detected in 1972. The City of Rock Island has been denied a permit for continued use of the site. The case is in litigation. City officials have begun to look for another site. The existing landfill will probably be closed when a new site is found. No remedial action has been reported.

leachate
groundwater

Winnetka, Illinois

The Winnetka landfill site has been used for disposal since 1947. A study was made of the hydrogeologic and water-quality conditions at the landfill. A groundwater mound has formed within the landfill; groundwater flow is therefore away from the landfill on all sides. Groundwater contamination is limited to the fill area.

leachate
groundwater

South Beloit, Illinois

An investigation by the Illinois Environmental Protection Agency of a landfill for which a permit application had been received disclosed groundwater contamination as a result of the landfill operation. The landfill has been in operation in a sand and gravel quarry since 1946, and several private wells had become contaminated several years ago. The landfill site is closed and monitoring of groundwater has been initiated.

leachate
private well
groundwater

Rockford, Illinois

In late 1971, contamination of a public water supply well became apparent when detected in wells and in near-by homes. An investigation traced the source of contamination to a near-by landfill. Several industrial wells had previously shown contamination and their use had been discontinued. At the request of the superintendent of the Rockford Water Department, a groundwater recovery program was developed by the Illinois State Geological Survey and State Water Survey. The plan recommended pumping groundwater and recovering methane. The proposal was never implemented. Legal action was taken in early 1974 by the Illinois Environmental Protection Agency. An agreement was reached whereby the site was closed and covered. Several homes whose wells had been affected were provided with public water. Remedial action following contamination of the initial well might have limited the spread of contamination.

leachate
mercury
public wells
groundwater

Palos Hills, Illinois

When landfill operations were begun in a sand and gravel quarry, disposal was directly into water at the base of the quarry. Concern about possible groundwater contamination led to an investigation. It was determined that the sand and gravel aquifer was contaminated, but there was no evidence that the underlying limestone aquifer was affected. A 1972 Illinois Pollution Control Board ruling against the landfill required diversion of surface water, installation of a clay liner in places, closure within a year, and continued monitoring. The site has been closed and final cover is nearly complete.

leachate
groundwater
aquifer

South Elgin, Illinois

A landfill was operated on a 45-acre site for several years. Monitoring wells installed in the shallow sand and gravel aquifer detected groundwater contamination about 1970. The monitoring wells had been placed between the landfill and the South Elgin well field. In 1972, the operators of the landfill were fined $10,000 by the Illinois Pollution Control Board for causing groundwater contamination and posing a potential threat to the South Elgin well field. In 1975, a permit was issued for the use of the site for inert materials to bring the site up to grade for closing. The permit provides for some collection and treatment of surface leachate. Monitoring continues to show groundwater contamination of the shallow aquifer.

leachate
groundwater

Marshall, Illinois

Velsicol Chemical Corporation releases about 110,000 gpd of cooling towers blowdown water, borter blowdown water, wastes from sodium zeollite regeneration and chlordane processing and contaminated runoff into 3 surface impoundments. Analysis of groundwaters show high concentrations of chloride, chlordane, borox, oil and grease. The pollution seems to be confined to the plant property. The Company is currently upgrading the ponds.

surface impoundment
chloride
chlordane, oil
groundwater

Cook County, Illinois

Hyon Waste Management Corporation uses 14 lagoons for the treatment of industrial wastes. Groundwater monitoring has shown local concentrations of copper, chromium, iron, manganese, nickel, zinc, cyanide and COD to exceed background concentrations.

industrial wastes
groundwater

West Chicago, Illinois

Between 1932 and 1973, Kerr-McGee and its predecessor companies operated a facility where radioactive and rare-earth containing compounds were processed. During operation, liquid waste was generated at a rate of 400,000 to 600,000 GPD and discharged to two infiltration impoundments between 1932 nd 1953. Two others were constructed in 1954. Groundwater analysis in 1976 did not show the presence of radioactivity but subsequent analyses in 1979 showed elevated concentrations of ammonia, chloride, fluoride, phosphorus, TDS, sulfate and nitrate.

radioactive waste
chemicals
groundwater

Kankakee County, Illinois

The General Foods - Gaines Research Kennel releases an average of 15,000 GDP of activated sludge effluent into a permitted, rubber-lined lagoon and then to a subsurface seepage system for disposal. After wells in a nearby subdivision showed elevated levels of nitrate, monitoring wells were located neard the facility. These wells showed elevated levels of ammonia and nitrate. The seepage field has been shown to be the primary cause of pollution with the lagoon being secondary.

nitrate
groundwater

Streator, Illinois

sulfuric acid
surface water
cattle deaths

Borden Inc. - Smith Douglas manufactures phosphoric acid, sulfuric acid and a mixed fertilizer for agricultural use. Wastewater is currently discharged into two lagoons, one of which is referred to as the "green pond" due to its color resulting from a dye used in the fertilizer. Green water has been observed seeping from a bank into a nearby creek. The green water has been analyzed and found a certain high amounts of ammonia, phosphorus, chloride, fluoride, nd sulfates. The pH of this water was 4.6. In 1966 several cattle died as a result of high nitrate and sulfate concentrations in the stream. Green pond has been subsequently drained and filled with clear water.

Danville, Illinois

chemical wastes
ground water

Allied Chemical Corporation manufacturers regrigerants and aerosol propellants at its plant in Danville. Wastewater is generated at about 50 gpd and contains approximately 30% spent hydrochloric acid, less than 1% hydrofluoric acid, and is high in chlorides and inorganic salts. Wastewater is discharged into a lagoon and finally enters a deep well injection system. Analyses of water samples from monitoring wells indicates that ground water adajcent to the impoundment has been polluted by fluoride, chloride, sulfate and antimony, and also that the contaminant concentrations decrease to background levels within the plant property. The impoundment will be closed in the summe of 1980.

Mahomet, Illinois

TDS
ground water

The Sangamon Valley Water District operates a three-cell aerated lagoon sewage treatment facility that was built in 1969 and expanded in 1971. Groundwater monitoring wells have shown that the facility is polluting nearby ground water. Waters down-gradient from the facility have shown 3-fold increases in TDS and 20-fold increases in chlorides. No immediate legal action has been taken pending Illinois EPA studies.

Du Page County, Illinois

Some deterioration in water quality is apparent away from the landfill, but ground-water contamination is generally limited to the fill areas. The Old Du Page County landfill was operated from 1952 to 1966. A study was made of the hydrogeologic and water conditions at the landfill. A ground water mound, which is reflected by a number of seeps and springs around the perimeter of the landfill has developed at the site.

leachate
water quality

Elgin, Illinois

Groundwater contamination is limited to the landfill site and the area between the fill and the Fox River. Filling began in 1968 at the Elgin landfill. Wastes have included both household garbage and industrial wastes. A study was made of the hydrogeologic and water-quality conditions at the site.

leachate
groundwater

Lake County, Illinois

A complaint of contamination of a private well was made to the Illinois Environmental Protection Agency in December 1973. An investigation traced the source to an industrial waste leaching pit some 50 feet from the affected well. In addition, acid wastes were stored in open barrels near by. There was evidence of spillage and discharge to near-by Lily Lake. The responsible industry agreed to have the industrial wastes hauled away. Shortly thereafter, the industry moved to a new location and legal action by an environmental group was dropped. The owners of the contaminated well drilled a new well to a deeper aquifer.

acid wastes
private well
groundwater

West Chicago, Illinois

A 1962 report prepared by the Illinois Geological Survey and the Illinois Water Survey indicated an area of mineralized ground water in West Chicago. W.J. Butler designed a study to determine the source and extent of groundwater mineralization. The contamination was traced to a seepage lagoon used by a chemical plant to dispose of it's wastes--1.6 million gallons of waste water were discharged to this lagoon weekly. The bottom of the lagoon is in sand. The contaminants apparently moved through the glacial drift to the dolomite aquifer. No remedial action was reported.

leachate
groundwater

Peoria, Illinois

Several public water-supply wells became contaminated with highly mineralized water shortly after they were installed. The contamination was traced to near-by surface disposal of waste from a water softener. The wells were relocated.

waste water
public wells

Geneseo, Illinois

leachate
groundwater

Dumping was begun at the landfill site before 1900. At about the same time, springs east of the site were tapped as a source of water for Geneseo. Increased demand for water has resulted in the installation of several wells in the landfill area; the springs have been abandoned. Water-quality analyses of the springs and wells during the past several decades has indicated no groundwater contamination beyond the limits of the fill. A change in quality of raw water was first thought to have resulted from pollution by the landfill, but the changes may have been due to increased production. The site was closed in 1974 as a threat to local water supply wells. The springs and wells have been abandoned because of deterioration in the quality of the water. However, there has been no conclusive evidence that the landfill is responsible for the degradation, even though the geologic setting is undesirable for landfill operations.

Macomb, Illinois

Shortly before a landfill was closed in 1971, leachate was discovered coming from the side of the fill. The continued leachate discharge has led to the conjecture that a spring was buried in the course of landfill operation. Leachate moves toward the La Moine River. The city of Macomb tried to stop the leachate discharges by regrading the site, with some success. However, final cover has not been placed on the landfill to reduce infiltration.

leachate
surfacewater

Springfield, Illinois

Sampling of monitoring wells in late 1972 revealed groundwater was being contaminated by a landfill operation. A permit was issued by the IEPA for a new landfill site, which will result in the closing of the old site. Groundwater contamination continues.

leachate
groundwater

Danville Illinois-Indiana Wabask River 1977-1978.

In December 1977 a pipeline near Danville, Ill., that contained xylene ruptured and spilled into a creek; heavy rains washed out dams which were controlling the spill, and some of the material reached the Wabash River. As a precaution, residents of Terre Haute, Ind., stopped drawing water from the river and switched to well water. At Mt. Carmel, Ill., which has its water intake valves 8 feet below the river surface, extra carbon was added to its water treatment, also as a precautionary measure. There were no reports of human injury, but officials suspected that the xylene may have killed six cows and sickened 42 others. The pipeline was owned by the Amoco Oil Company. Several months later a second, smaller spill occurred, involving several hundred gallons of xylene. Vapors from that spill were strong enough to require evacuation of a number of residents.

xylene
groundwater
cow deaths

Aurora, Illinois

Leachate from a landfill site accepting industrial waste contaminated nine wells. Owners of the wells sued the owners, Fox Valley Disposal Co., and were awarded $54,000 damages to cover costs of legal expenses and a hook-up to the city of North Aurora's water lines. The State investigations of the incident cost an estimated $52,000.

groundwater

Calumet (Cook County), Illinois

On December 18, 1975 a man was severely burned when the compactor that he was operating struct a 55-gallon drum of ethyl acetate; he died three days later from his burns. The compactor, valued at ($100,000) was total loss. A scavenger hauler had deposited two drums of ethyl acetate in the dark hours of the morning.

ethyl acetate
human health

East St. Louis, Illinois

The Monsanto Chemical Co. maintained an industrial waste dump on company property adjacent to the Mississippi River in East Saint Louis from the mid 1960's. Wastes dumped into holding ponds include phenols, nitrobenzene derivatives, sulfuric acid and fly ash. In 1972 and 1974 tests of shallow wells at the perimeter of the site showed phenol contamination. In July 1974, the site was closed.

organics
groundwater

Mallard Lake Forest Preserve (DuPage County), Illinois

According to newspaper reports, the Illinois Attorney General filed suit to close a hazardous chemical waste dumping site which had taken liquid chemical wastes including cyanide, phenols and mercury. The Attorney General said the site was "polluting or threatening to pollute the groundwater and adjacent Lake Mallard." The Attorney General also sued the Illinois Environmental Protection Agency, which had issued a supplemental permit that allowed dumping of the liquid wastes in the sanitary landfill.

mixed chemicals
ground water

Marshall, Illinois, August, 1979

Heavy rains apparently eroded a dike at a waste-storage pond for hexachlorocylopentadiene owned by the Velsicol Chemical Corporation, near Marshall, washing some of the contaminant into two tributaries which fed into the Wabash and Ohio Rivers above Franklin, Illinois. The spill was contained within four hours. Velsicol and the State are cleaning up the site.

hexachlorocyclopentadiane
surface waters

INDIANA

Gary, Indiana

In August 1977 explosions and a fire occurred at Mid-Co. Corp., owned and operated by Ernest DeHart. Hazardous wastes stored and stock-piled in open fields burned out of control for hours. The State has estimated site cleanup would cost $5 million. EPA has filed suit to require a complete cleanup of the site. A partial cleanup was begun in early 1980 under court order.

mixed wastes
fire hazard

Bloomington, Indiana

Sewer lines, streams and farms have been contaminated with the toxic chemical PCB. Westinghouse Electric Corp. has been charged with dumping up to eight pounds a day into the city's sewers.

PCB
land,surface water

Dunreith, Indiana

acetone cyanohydrin

groundwater

A railroad tank car accident resulted in an explosion, a fire, and the spilling of hazardous chemicals. Some 1200 gallons of acetone cyanohydrin percolated into the railroad bed and down a tile drain into Buck Creek, which supplied water to a downstream municipality. Concentrations of cyanide in Buck Creek were as high as 405mg/1. The maximum safe level is 20mg/1. Over 3 tons of calcium hypochlorite was dumped into Buck Creek to deactivate the cyanide before it reached downstream water users. This approach was apparently successful. Near-by-well owners were notified to cease use of their wells. A sampling program to test for contamination of groundwater continued into April. Contamination water was pumped from the ground, treated, lagooned, then fed to surface water. April snowmelt flushed additional cyanide into ground water. Roadbed materials were decontaminated. The remedial action was apparently successful. However, the polluted waters were not noticed quickly enough, and serious consequences could have resulted.

Kingsbury, Indiana

mixed chemicals
groundwater

The site of the Fisher-Calo Chemical and Solvent Corp. was named in 1979 as a potential hazard. An estimated 20,000 drums and several million gallons in bulk storage of acids, cyanides, and chlorinated solvents are in a warehouse and open field at the site. The site is located in a sand dune area, and ground and surface water pollution is probable. The State filed suit in this case, but the judge hasn't heard the case.

Most cyanide wastes have been moved to the NECO site in Sheffield, Illinois.

There is no known surface water contamination, but one monitoring well has been contaminated.

Kokomo, Indiana

A private well was contaminated with a creosote-like waste. A new well was drilled near by that also became contaminated. An investigation revealed that molding sand used in the manufacturing of chrome steel castings had been used for land fill. Water seeping through the sand leached out chromate and carried it through a drainage ditch to a swamp that acted as a recharge zone to ground water. The swamp is close to the affected wells. No remedial action was reported.

chromate
ground water

Elkart, Indiana

In 1973 chromium levels in wells of six homeowners were found to be over 100 times EPA drinking water standards. The suspected source of the pollutants is the Himco industrial landfill containing pharmaceutical and other industrial waste. The problem was "remedied" by digging deeper wells. Recently, USGS is studying the entire area around the site to evaluate extent of groundwater contamination. The site closed in 1976 through a consent agreement with the State.

chromium
public wells

IOWA

Fort Dodge, Iowa

Contaminated oil has been stored since March 1977 under court order. The operator stored oil for recycling and road application until the oil was found to be contaminated by PCB's. The operator is not financially able to dispose of contaminated oils. Some oil has been disposed at the expense of the State of Iowa. 1300 gallons of contaminated oil remains in storage at Marion and 23,000 gallons at Fort Dodge until financial arrangements for disposal can be made.

PCB
storage & road application

Malvern, Iowa, 1980

Approximately 1200 drums, some rusting and leaking of flammable chemicals stored in an unsafe, wooden warehouse, pose threats of fire and explosion, potentially toxic vapors and contamination of a nearby stream to the community in Malvern, Iowa. Private residents are located within 500 feet and bulk storage in 3 gasoline tanks is about 100 feet from the rear of the warehouse. The site is owned by Robert Richter. Efforts are underway to remedy the situation. EPA has expended $10,000 in Section 104 Emergency Funds and the State has agreed to assume any additional costs. An enforcement action was filed 3/21/80 in Federal District Court to obtain relief that would abate the imminent hazard.

toluene, creotone
zinc oxide
air/health
fire/explosion
surface water

Charles City, Iowa

This disposal site is located on the bank of the Cedar River in Charles City, Iowa. Salisbury Laboratories disposed of large quantities of chemical wastes resulting from the manufacture of pharmaceutical products at the site since 1953. Significant amounts of arsenic and organics, including orthonitroaniline, have been found to be leaching to the river from the disposal site. Orthonitroanaline was found in wells over 100 kilometers from the site. An Administrative Order was issued by EPA in July 1979 which ordered Salsbury Laboratories to undertake a series of remedial actions on a specific schedule including installation of a groundwater monitoring system. Monitoring was initiated in September 1979.

orthonitroanaline,
arsenic

groundwater

Omaha, Iowa

Ground water is contaminated in a zone 5100 feet wide, 670 feet long (truncated by the Missouri River), and 40 feet deep. The bottom of the contaminated zone coincides with the bedrock surface. Beginning in 1972, an investigation was made of the extent of possible ground water contamination associated with the Omaha landfill. The landfill is 9 years old and covers 110 acres. No remedial action was reported.

leachate
groundwater

Ames, Iowa

Ground water was contaminated in a zone extending 7000 feet down-gradient from the landfill and to a vertical depth of between 80 and 100 feet. In 1972, an investigation was made to determine whether a landfilll was causing contamination and, if so, to what extent. The landfill is 18 years old and covers 34 acres. No remedial action was reported.

leachate
groundwater

Kansas

Newton, Kansas

PCB cattle

Fifty-six cattle died and another one hundred twelve were contaminated when waste transformer oil containing PCB's was used on back rubbers at a farm. The 112 cattle were slain and buried in an EPA approved south-central Kansas industrial waste disposal site along with 70 pounds of contaminated meat, 2 empty PCB contaminated back rubbers, and 70 cubic yards of PCB contaminated soil. The PCB contaminated oil is in storage awaiting an appropriate disposal method.

Vulcan Materials Co., Wichita, Kansas

air & water pollution

The Vulcan Materials Co. operated a waste disposal facitilty in Wichita, Kansas. In the early 1970's extensive air and water pollution were caused by improper management practices. Breached lagoons and contaminated runoff resulted in numerous fishfills. Vulcan paid a $10,000 fine for a 1976 fishkill. Vulcan claims to have spent $8.9 million on site cleanup and implementation of a comprehensive waste management program is complete. The Kansas Department of Health and Environment and the EPA Regional Office inspected the site and facility during the summer of 1979 and approved the clean-up effort.

Cherryvale, Kansas

The National Zinc Company site is an inactive zinc processing facility. Active clean-up of this site has been taking place over the last two years under the direction of the State. Several settling ponds have been drained and bottom sediments scraped into the center for further disposal. A majority of the structure on-site have been partially disassembled or removed.

zinc

ground water

KENTUCKY

West Point, Kentucky

The "Valley of the Drums" is an abandoned disposal site containing approximately 17,000 drums of industrial waste. Federal funds were spent to temporarily contain the site. An emergency waste treatment system was also installed. The State is negotiating with the waste generators for removal of the drums and proper disposal. Chemicals migrating from the site have been detected in streams draining to the Ohio River.

industrial wastes

surface water

Louisville, Kentucky, 1977

The municipal sewer system was contaminated by chlorinated organic chemicals dumped by Donald Distler, a waste hauler. The wastewater treatment plant was temporarily evacuated by workers due to toxic fumes produced by the illegally dumped wastes. EPA funded the cleaning of the municipal sewers and removal of contaminated sludges. Distler was convicted on criminal charges of illegal dumping under the Clean Water Act.

chlorinated organics

wastewater treatment plant, surface water

Louisville, Kentucky

methane gas
evacuation

For five years Lee's Lane Landfill received municipal and industrial wastes. In 1975 officials temporarily evacuated eight families because of explosive methane gas. The dump was subsequently closed. Approximately 400 drums of hazardous waste are located at the dump within the floodplain of the Ohio River. A gas venting system is planned for installation at the landfill.

West Point, Kentucky

industrial wastes
surface waters

The "Brickyard" site is an abandoned disposal site which was used by Donald Distler for drum storage. The site contains thousands of drums on the surface. No effort to contain the site had been made and surface water contamination has occurred.

LOUISIANA

Bayou Sorrel, Louisiana, 1978

On July 25, a truck driver employed by Clean Land Air Water, (CLAW) died of hydrogen sulfide asphyxiation while dumping a load of chemicals into a pit owned by CLAWS's sister company, Environmental Purification Advancement. The facility contained four surface impoundments and a landfill cell. The site, however, was only permitted for landfill cell. The liquid waste originated from chemical and petroleum industries. The state revoked the permit for land disposal and required Environmental Purification Advancement to cleanup the site. The company is reported to have spent $1,000,000. The company implemented an enhanced evaporation plan which accelerated the evaporation and dispersion of pollutants into the atmosphere. This kind of approach, however, can not be considered as containment, treatment or cleanup.

hydrogen sulfide
organics, toxic
wastes
death, air
ground water

Baton Rouge, Louisiana, May 1979

Petro-Processors of Louisiana, Inc. has dumped hazardous waste into a waste disposal site. Heavy rains transported the chemicals to an adjacent 550 acres of farmland which

toxic wastes
soil, vegetation
cattle deaths

damaged vegetation. The farmer has waged a ten-year court fight over the pollution. His sister and brothers accepted and out-of-court settlement of $10,000 each plus $20,000 for 160 cattle who died after the chemical leaks were discovered. Cleanup costs are expected to be substantial.

DeQuincy, Louisiana

A firm used a site in DeQuincy, Louisiana for land disposal of toxic wastes. At the DeRidder site, wastes leaking from some of the 3000 drums stored there have caused vegetation stress. Vapors have also been observed emanating from the drums. The site is also subject to flooding and wash-outs. Those materials that have not washed downstream are buried. Property surrounding the site is now being developed for residential use. State court action enjoined the firm from further use of portions this site. Cleanup costs are expected to be substantial.

toxic wastes
surface water, air

Ville Platte, Louisiana

The BWS Tate Cove site was supposed to be temporary storage for 5000 drums of industrial wastes. This unsecured, abandoned site was poorly managed. Hazardous wastes, including toxic organics and heavy metals, have entered Coulee Teal, which is a recharge area for the Chicot aquifer. The cleanup costs for temporary abatement of runoff is being assessed.

toxic organics
heavy metals
surface and
ground water

Sorrento, Louisiana

The Cleave Reber site has been abandoned since 1972 and contains 600 very badly deteriorating waste drums containing sulfuric acid, cyclohexamine, and waste oils and greases. A pond containing PCB's, drains into a tributary of Blind River. The site may also contain styrene tars that have been covered over. Currently the site is under investigation for remedial action.

Organics, PCB's
surface water

Browing-Ferris Industries, Inc. (Darrow/Geismer), Ascersion Parish, Louisana

liquid wastes
surface water

The site was opened as a landfill operation in 1967 by Industrial Waste, Inc. Industrial Waste, Inc. had problems with liquid wastes leaving the site and entering Bayou Conway. In 1970, approval was given to operate a refuse and garbage disposal operation at the same site; however, industrial wastes were accepted and stored. Browning-Ferris Industries purchased the landfill in 1973 but was apparently unaware of a Cease and Desist Order or disposal restrictions that had been placed on the site. In 1974, BFI started repair of dikes and contracted for the removal of some of the styene tars. In January 1978, a dike was washed out and liquid wastes spilled onto the adjacent land. BFI repaired the dikes and did some cleanup.

MAINE

Baileyville, Maine

chemical wastes
ground water

A large paper mill constructed three lagoons in 1977 to treat a wastewater flow of about 35 MGD. The lagoons were expected to be "self sealing" from the deposition of inert solids so no liners were installed. Adjacent ground water quality monitoring surveys has shown elevated levels of sodium, TDS, sulfate, iron, chloride, calcium, and magnesium. Sampling of surface waters near the impoundments also show impact. A series of meetings have taken place between the company's representatives and the Maine Department of Environmental Protection (DEP) to effect a lasting solution to the pollution problem.

East Gray, Maine

chemical wastes
well water

A waste disposal site in East Gray, Maine accepted an estimated 100,000 to 200,000 gallons annually of waste oils, process bottom wastes, tank bottom wastes, septic tank wastes, industrial process wastes, and various other liquid wastes. These wastes were stored in tanks or placed in a 1/2 acre asphalt-lined lagoon. Two years after commencement of operations complaints of poor water quality were voiced by nearby residents. In 1977 trichlorethane, trichloroethylene, dimethyl sulfate, acetone, trimethylsilanol, xylene, freon and assorted alcohols were found in 20 nearby residential well waters. It was later verified that the contamination originated from the waste disposal site. A moratorium has been placed on any new construction within a 2-mile radius of the site and the facility has been closed. Interim measures have been taken to supply residents with drinking water until a long-term solution is found.

North Berwick, Maine, 1980

Eight abandoned trailers, containing 800 drums of hazardous materials, including phenols, toluene, xylene, and creosol were located on the unused portion of an industrial parking lot. The transporters intended to use this area as a storage and transfer facility without benefit of required State approvals. Two of the trailers are leaking in close proximity of a drainage ditch which leads to the Great Works River. All of the drums and trailers have been removed by the State. Threat to surface waters allowed EPA to use CWA section 311 funds to provide site security.

phenols
surface waters

Easton Maine

Since the early 1960's a potato processing plant and an adjacent sugar beet processing plant have established 21 separate surface impoundments covering 175 acres to dispose of, treat, or store their effluent. The lagoons were not properly engineered, were poorly maintained and did not work properly. Enforcement actions were hampered by bankruptcy court proceedings. Although surface water impact from the lagoons is the most obvious problem, groundwater contamination is highly suspected. A few private drinking water wells have become contaminated but a positive connection between the contamination and the lagoons has not been established.

chemical wastes
surface water

Guilford, Maine

State officials have warned fisherman to use discretion in eating fish from the Piscataquis and Penobscot Rivers due to TRIS, a carcinogen reportedly discharged into the rivers illegally in 1979.

TRIS
surface water

Saco, Maine

In 1974 tests indicated that private drinking water wells adjacent to the town dump had been contaminated with chromium, iron and manganese. Disposal of sludges from wastewater treatment plants receiving large amounts of tannery waste was apparently the cause of the problem.

heavy metals
drinking water wells.

Gray, Maine

In 1977 residential wells were contaminated with trichloroethylene and other chemicals by a solvent and oil waste processing facility. Municipal water lines were extended to the affected community at a cost of $500,000. Health effects studies are being conducted. The State paid for cleanup of the site.

TCE, organics
drinking water wells

MARYLAND

Baltimore, Maryland

chromate
surface water

Allied Chemical has used chrome ore wastes for many years as fill in the Baltimore Harbor area. Leachate from the fill has drained to the harbor through storm sewers and has disrupted aquatic life at the bottom of the harbor. A temporary containment and treatment system has been installed by the State. Permanent remedial measures will be undertaken by the State.

Fairchild Republic, Hagerstown, Maryland

toxic chemicals
groundwater

In 1979, Hagerstown, Maryland officials suspected that chemicals from the Fairchild Republic Co. were leaching into the groundwater. Health Department officials located two wells with contamination. A consultant has been contracted to study the wells in the area.

Sharptown, Maryland, 1980

Thirty-four storage tanks containing 170,000 gallons of waste oil contaminated with PCB's, xylene, benzene, etc., are inadequately stored adjacent to the Nanticoke River, a tributary of Chesapeake Bay and a prime spawning ground for rockfish. Approximately $500,000 in section 311(k) funds have been committed to clean up the site. Arrangements are being made to relocate oil/PCB liquids to temporary storage at a GSA facility in Curtis Bay, Maryland.

waste oil, PCB's
surface water

MASSACHUSETTS

Freetown, Massachusetts, 1979

An unknown quantity of organic solvents were buried in leaking drums and dumped in a pit area at the H&M Drum Company's illegal site. The subsurface geology consists of gravel deposits underlain with a clay lense 5 to 7 feet in thickness. The site also has approximately 300 drums stored in 3 semitrailers and 700 drums stored in a warehouse adjacent to the site. The State has acted to remove barrels, however funds are not available at this time to decontaminate soils or remove materials that have leached into the ground. The owner of the company was criminally indicted by a State court and received a jail sentence.

organic solvents
land and groundwater pollution

Bedford, Massachusetts, 1979

The Boston suburb of Bedford has lost 85 percent of its municipal water supply due to well contamination of dioxane and TCE. The town is buying water to replace the supply and is spending $100,000 to identify the source of the chemicals. Several large firms have been named as potential generators.

dioxane, TCE
drinking water supply

Dorchester, Massachusetts

In 1979 after complaints of air pollution and several fires, the City of Boston hired a waste disposal contractor to remove 2000 barrels of mixed chemical waste from the site of a bankrupt waste hauler. Costs totalled $56,000. The State has filed criminal charges in this case.

chemical wastes
fire, air pollution

Rehoboth, Massachusetts, 1978

Illegal dumping of chemical wastes near Shad Factory Pond contaminated private wells and threatened a reservoir. Among the identified chemicals are toluene, trichloroethylene, and ethyl acetate. Cleanup cost the State $125,000.

chemical wastes
drinking water wells

Lowell, Massachusetts

A million gallons of hazardous wastes, including solvents, waste oils, plating wastes, toxic metals and chlorinated hydrocarbons, were leaking from an abandoned toxic waste disposal site. Rain water runoff caused contamination of Concord River's aquatic environment. EPA, State officials, and private contractors removed most of

organics, heavy metals
surface water

the wastes at a cost to the State of approximately $1.5 million. Another $600,000 is needed to finish the work, and those monies have been appropriated by the state legislature. The contaminated soil and monitoring requirements have not been met.

Acton, Massachusetts, 1979

Subsurface disposal of benzene, toluene, dichloroethylene, and other organics by W.R. Grace and Company, an organic chemical manufacturer, led to the loss of 45 percent of the municipal water supply. The town has a ban on non-essential water use. As part of an agreement to determine town action on a request for building permit the company funded a $90,000 groundwater study. The results of that study have provided the basis for Federal enforcement action and a Section 7003 RCRA lawsuit has been filed. The company has simply agreed to short term cessation of discharge of wastes to unline lagoons and of site storage of wastes, but not to the broader relief sought by the government.

benzene
toluene, etc.
drinking water wells

Massachusetts

The State of Massachusetts has compiled a report documenting the severity of groundwater pollution by hazardous substances in that state. In 1978 only four communities had closed wells because of toxic chemical contamination. By September 1979, a total of 22 communities had been affected, with other incidents of contamination being identified in 26 other communities. In September of 1979, at least one-third of Massachusetts's communities had been affected to some degree by chemical contamination. The average loss of water resources to these communities was approximately 40 per cent, with a range of 5 to 100 per cent loss. These data exclude instances of contamination by salt or PCB's. The Department of Housing & Urban Development exhausted their Imminent Hazard Fund in MA by partially funding new supplies in Rowley and Groveland. The FmHA also provided a portion of the Funds for Rowley. A number of communities are purchasing supplies from peaking wells from other towns or from the Boston Metropolitan District Commission whose supply is now serving 120% over capacity.

chemical contamination
drinking water wells

MICHIGAN

Story Chemical Co., Dalton, Michigan

In 1976, the Cordova Company purchased the assets of the bankrupt Story Chemical Co. and agreed to pay for site cleanup in exchange for a release from future liability. Story Chemical had abandoned 8100 55-gallons drums of chemicals and 8000 cubic yards of sludges on the site and had, during plant operation, stopped operating a groundwater purge system installed by a predecessor at the facility. Costs to connect 36 private residents to a nearby municipal water supply are estimated at $3 million. Cordova has spent $600,000 on cleanup and the State has spent $610,000.

Mixed chemicals
drinking water

Monroe County, Michigan

An investigation was made to evaluate existing and potential pollution resulting from a landfill in Monroe County, Michigan. The presence of springs around the periphery of the landfill suggests that a ground-water mound has developed within the fill. Ground-water contamination is limited to the area beneath the landfill.

leachate
ground water

Bronson, Michigan

In 1949, a shallow domestic well was found to be contaminated with chromium. The contamination was traced to leakage from two ponds of a major plating company. Apparently, a ground-water mound had formed beneath the ponds. No remedial action was reported.

plating wastes
ground water

Cast Forge, Inc., Howell, Michigan,

PCB contamination of groundwater and surface water. Company discharged PCB contaminated wastewater into a lagoon which in the past discharged directly to the south branch of the Shiwassee River and continues to discharge to groundwaters. Sediment and fish of that river have been contaminated with high concentrations of PCB. State has filed a civil action against the company seeking cleanup of site. EPA is monitoring the State's action.

PCB's
fish,river
sediment

Story Chemical Company, Muskegon County, Michigan, 1979

Surface storage of drummed waste, with occasional burial using insufficient cover techniques. Cleanup of distillation residues, solvents, and raw materials is under way. Residential well contamination has been confirmed. New owner has completed removal of major sources of pollution. State has appropriated funds for further cleanup and alternate drinking water supplies.

industrial
wastes
drinking
water

West K.L. Avenue Landfill, Kalamazoo, Michigan, 1979

Primarily a sanitary landfill. Received some industrial wastes. Confirmed ground water contamination of private wells off-site. Private citizens sued for cleanup and have negotiated a settlement with the company which would provide an alternative water supply for the residents.

industrial
wastes
drinking
well

Cast Forge, Inc., Howell, Michigan PCB contamination of groundwater and surface water. Company discharged PCB contamianted wastewater into a lagoon which in the past discharged directly to the south branch of the Shiwassee River and continues to discharge to groundwaters. Sediment and fish of that river have been contaminated with high concentrations of PCB. State has filed a civil action against the company seeking a complete cleanup of site. EPA is monitoring the State's action.	PCB's, fish and river sediment
Story Chemical Company, Muskegon County, Michigan, 1979 Surface storage of drummed waste, with occassional burial using insufficient cover techniques. Cleanup of distillation residues solvents, and raw materials is underway. Residential well contamination has been confirmed. New owner has completed removal of major sources of pollution. State has appropriated funds for further cleanup and alternate drinking water supplies.	industrial waste drinking water
West K.L. Avenue Landfill, Kalamazoo, Michigan, 1979 Primarily a sanitary landfill. Received some industrial wastes. Confirmed groundwater contamination of private wells off-site. Private citizens sued for cleanup and have negotiated a settlement with the company which would provide an alternative drinking water supply for the residents.	industrial drinking water well

St. Louis, Michigan 1979

Between 1971 and 1973 the Michigan (presently Velsicol) Chemical Corporation dumped and estimated 269,000 pounds of waste materials containing 60 to 70 percent (161,400 to 188,300 pounds) of PBB's into the Gratiot County landfill. Significant traces of PBB's and various levels of other contaminant exist in ground and surface water sample taken in and around the landfill site; domestic water wells at the time were uncontaminated. EPA granted MDNR $75,000 to study area groundwater

PCB
ground/surface water

Adrian, Michigan

Curene 442, a suspected carcinogen, was reportedly found in high levels in dust throughout a subdivision neighboring the Anderson Development Company, manufacturer of the chemical. Unacceptable levels of the chemical were found in workers at the plant as well as nearby residents. The State is conducting an investigation.

Curene 442
human health

Bofors Lakeway, Inc., Muskegon, Michigan

Groundwater contamination at this facility results from past process water discharge to unlined lagoons. Contaminated groundwaters have seeped into Big Black Creek. In addition, contaminated wastewater and sludges have entered the river via surface discharges. Both sources have had a serious effect upon aquatic life in the Creek with the effects evident seven miles downstream. Contaminants include dichlorobenzidine, benzedine, aromatic amines, benzene, and toluene. A fraction of the contaminated groundwater was removed by the purge system which was jointly funded by company and State. State has filed for injunctive relief, penalties and damages for total cleanup of site.

organics

ground and surface water

Montague, Michigan, 1957-1979

The State of fMichigan filed a multi-million dollar lawsuit, alleging that Hooker Chemical Co. buried tons of brine, asbestos, fly ash and deadly pesticides for approximately two years on an 880 acre site of its factory. News media reports charged that 20,000 drums were leaking wastes from the manufacture of the pesticide precurser C-56; in 1979 officials also discovered the highest levels of dioxin ever measured in Michigan.

pesticides
ground/surface water

The chemicals leaked in the groundwater, contaminating private wells, and then into White Lake, which flows into Lake Michigan less than a mile away.

Hooker offered the State a $11.5 million cleanup pact, but the Attorney General declined. Cleanup estimates range from $15 million to $300 million. In June 1979, Hooker agreeded to install a purge well system to intercept contaminated water before it reached White Lake. In October of 1979, this Company and the State agreed on a cleanup plan costing over $15 million.

Oscoda, Michigan

In 1973 high levels of trichloroethylene, a carcinogen, were found in the well of a private residence. Over the following five years, seven other private residential wells and an industrial well used by employees for drinking became contaminated. The suspected cause is open dumping of TCE on the site of a nearby auto parts plant. Public water has been supplied to the residents at a cost of $140,000, borne by the FHA and the municipality.

TCE
drinking water

Oakland County, Michigan

Two illegal dumpsites in Oakland County, Michigan have been named as the source of PCB's, toxic solvents and other chemicals found in local wells in August 1979. Approximately 2000 drums were dumped at the sites about 12 to 14 years ago. The Michigan Department of Natural Resources is involved in testing local wells and expects to spend about $500,000 to remove the drums from the site. The State declared the site a "toxic" substances emergency in September, 1979.

mixed chemicals
drinking water

MINNESOTA

Pollution Control, Inc.
Shakopee, Minnesota

28,000 thousands drums of mixed unidentified chemicals, many of which are flammable solvents and are leaking, have been stored at this abandoned site. A State District Court ordered the dump's owner Melvin Bell to remove all barrels, ash, sludge and contaminated soil or surrender a $900,000 judgement. Currently there are about 5000 barrels remaining along with most of the ash and sludge. Bell and other principals in the company now operate a waste disposal incinerator in El Dorado, Arkansas.

mixed chemicals

St. Paul, Minnesota

After being assured that no surface impoundments were present on the Koppers Coke Company property in St. Paul, the MPCA staff discovered a 10'x13' unlined basin used to dispose of oil, grease, various hydrocarbons and phenols. Inspection of the property as a condition of sale revealed both soil and groundwater contamination with PAH's (polynuclear aromatic hydrocarbons) as far as 1400' from the pit. It is not known whether deep aquifers are contaminated. Corrective measures will be required by the State.

hydrocarbons
soil, ground water

Weisman Scrap Metal, Winona, Minnesota, 1979

This is an inactive site. 500 cubic yards of PCB - contaminated soil and oil have been placed in a plastic lined and covered diked area and is awaiting disposal. Water supply wells are within 3/4 mile. One well showed a PCB concentration as high as 45 ppb. The State is investigating proper disposal alternatives.

industrial wastes
drinking water
wells

Jordan, Minnesota

phosphorus
groundwater

The Jordan, Minnesota Municipal treatment plant produced an average of 268 MGD in 1978 which discharged into a 24-acre primary basin of which approximately five acres are covered with an average depth of seven inches. The seepage rate for the ponds and area was estimated to be 44,000 gpd per acre with an accumulation of sludge from 0.4 to 1 foot thick. The pond is completely anaerobic. An aquifer monitoring study has shown phosphorous in groundwater to be about 400 times background levels 75 feet from the pond. Nitrate levels are at least 800 times background 500 feet from the pond. In addition, significant concentrations of detergents were found in adjacent ground waters. The State has included the Jordan facility on its needs survey.

Pine Bond Area, Minnesota

chemical wastes
aquifer

In 1971 three major industrial facilities were shown by the Minnesota Pollution Cash Agency (MPCA) to have contaminated two square miles of drinking water aquifer in the St. Paul area through the use of unlined seepage ponds and finishing lagoons. The groundwaters were characterized by high total solids, nitrate, phenolic compounds and sulphate concentrations, as well as low pH and the presence of petroleum odors. Meetings were held between the MPCA and each of the companies in 1972. The use of the lagoons and ponds were discontinued, monitoring programs were implemented, treatment facilities were upgraded and alternate water supplies to the affected population were provided by the polluting companies.

Rush Creek and Garvin Brook, Minnesota, 1978

agricultural
fish kill
surface water

On May 20, 1978, a fish kill occurred on Rush Creek and Garvin Brook near St. Charles in southeastern Minnesota. Approximately 100,000 fish were killed including 10,000 trout. An estimated 13 miles of trout waters were destroyed. Most aquatic life necessary to support fish was also killed. This was the worst event in a recent series of similar kills in Minnesota. A similar kill was observed in Dushee Creek, MN, in June 1974. Additional kills were observed during early June 1979 on Pine Creek, MN. The kill on June 7 on this watershed was termed heavy by one observer who described "windrowed" dead fish (mainly suckers). Agricultural chemicals were implicated in this toxic event -- possibly an organophosphate insecticide.

Minneapolis, Minnesota

An investigation was made to determine the extent of possible ground-water contamination from a landfill during preliminary work for highway construction. The landfill was in an abandoned limestone quarry. At first all types of refuse went into the site, with disposal into several feet of water in the quarry. Later, only demolition wastes were accepted. An investigation revealed ground-water contamination and traced it to the landfill operation. The landfill is situated in an abandoned limestone quarry, which was about half full of water. Ground water is unconfined. The site was excavated and dewatered for freeway construction. The water removed by dewatering was chlorinated and discharged to surface water.

leachate
ground water

Woodbury Township, Minnesota

From the mid-fifties until 1966, a company used pits for disposal of spent solvents and acids. A 1963 investigation by the Minnesota Water Pollution Control Commission indicated the possibility of groundwater contamination. The report recommended that disposal of acids be stopped and all other wastes go to clay-lined impoundments. These two recommendations were followed, but in 1966, one of the nearby private wells showed groundwater contamination. All use of the disposal site was stopped. A 200-foot test well was drilled, and most ground-water contamination was found near the surface. The 200-foot well was converted to a barrier well to prevent the spread of groundwater contamination. Pumping at 700 gallons per minute began January 1968. Two additional barrier wells have since been constructed and put in operation. Pumping continues, but contamination is still present.

spent solvents
acid
groundwater

Duluth, Minnesota 1973 to the Present

asbestos
drinking water
Lake Superior

In June 1973 asbestos-related minerals or fibers were found in Lake Superior, the source of supply of drinking water for a number of communities, including the City of Duluth. This finding came during the course of litigation charging the Reserve Mining Company of Silver Bay, Minn., with polluting the lake through the dumping of waste tailings from its taconite ore mining operation. Taconite is a low-grade iron ore. Although there was dispute about the precise nature and concentrations of the asbestos-like fibers in the waters of the lake, there was much public concern about the presence of any absestos-like substances. Asbestos is a known human carcinogen when inhaled occupationally, causing several kinds of cancer, including lung cancer, mesothelioma, and gastrointestianl cancer. Despite the lack of known evidence that asbestos fibers ingested with drinking water would produce cancer or other health hazards, a number of these communities around the lake implemented additional treatment processes to remove the substances from their drinking water intakes.

Cass Lake Area, Minnesota

arsenic, groundwater

The St. Regis Paper Company produces an average wastewater discharge of 12,000 gallons per day from a wood treatment operation which goes into an unlined, aerated pond. A groundwater monitoring program established in 1979 has shown concentrations of arsenic to be 3 times the Federal primary drinking water standards, phenol to be 10,000 times the Federal secondary drinking water standards and pentachlorophenal to be 10 times the EPA recommended drinking water level. In addition, complaints were received from private citizens in the area about creosote taste and odor in their well waters and about the polluted and unusable condition of a nearby swimming beach. Final disposition of this situation is pending a State study of several proposed options.

Perham, Minnesota, 1972

arsenic
drinking water

In May 1972, a local contractor, Hammer Construction Co., occupied a new office and warehouse structure at the outskirts of Perham, a town of 1900 residents in western Minnesota. At that time, a well was drilled to supply drinking water for about 13 people who worked on the premises.

Early in May, five employees became ill with gastrointestinal symptoms. Following this, and continuing throughout the next 10 weeks, other employees also became ill. Arsenic poisoning was determined to be the cause, which affected a total of 11 out of 13 persons exposed to the water.

The source of the well water contamination has been tracked back to the mid-1930's at which time grasshoppers had constituted a serious problem to farmers in the area. Some residents recall that excess grasshopper bait had been buried at the former County Fairgrounds, in a corner which was used as the village dump in those days. The estimated costs of solutions range upward from $25,000.

Kansas City, Missouri

chemical waste
groundwater

The Conservation Chemicals Company site is a chemical waste treatment/disposal facility located on the river-side of the flood control level, at the confluence of the Missouri and Blue Rivers in Kansas City, Missouri. The facility was operated since the early 1960's and consisted of three disposal lagoons, a neutralization basin and several storage tanks. The site is located in sandy soil and groundwater contamination has been documented. In July 1977 the State of Missouri ordered the company to close, stabilize and cover the lagoons. The closure plan has not yet been completed. Additional groundwater monitoring is necessary to more specifically define the extent of contamination.

Dittmer, Missouri, 1977

PCB's
chemical waste
aquatic life
surface water

In 1977 a contaminated waste pit in Missouri was found to be responsible for killing all life in an adjacent stream, as well as generating fogs and odors and producing large amounts of contaminated wastes. Chemical wastes including PCBs apparently had been dumped into the illegal pit. The facility was an unpermitted chemical waste disposal site containing buried drums and an open pit where waste oil and chemicals had been poured. A CWA section 311 action was taken to clean up the site. Contaminated soil was removed from the site and sent to a permitted landfill (the permitted landfill has been closed and all wastes must be relocated). A carbon absorption unit was installed on the stream which empties into the Merrimac River. The cost to cleanup the site was $535,000. Monitoring is conducted by the State of Missouri.

St. Charles, Missouri, 1980

Approximately 100 drums, suspected to contain methyl-ethylketone, arsenic trioxide, chlordane, malathion, and another 50 drums containing unknown contents are stored in the St. Charles City Warehouse. Toxic fumes pose a hazard to nearby workers and the storage area is not diked, located on gravel, and is adjacent to a drainage ditch. Efforts to remedy the situation are underway. Costs to the City and State are unknown. EPA has expended $10,000 from Section 104 Emergency Funds.

hazardous chemicals
air/health
surface water

Missouri

The death of numerous animals at three stables led to an investigation. After 3 years, it was detemined that an extremely toxic chemical called dioxin was responsible for the deaths and illness. Dioxin had inadvertantly been mixed with waste oil spread in the riding areanas to control dust. Those animals coming into contact with the contaminated soil died. Contaminated soil was excavated from the stables and removed to landfills, a highway construction site, and a yardfill.

dioxin
animal deaths

St. Joseph, Missouri

toxic wastes

An unpermitted site where two hundred sixty four 55-gallon drums containing liquid chemical wastes (consisting primarily of isopropanol, butanol, stoddard solvent, methyethleketone, phenolics, and acrylics) were improperly stored and disposed of. Site is owned by Norris & Sons, Inc. Open pit on site was being used to dispose of liquid wastes. Site is being cleaned up under state order. Generator has agreed to remove drummed wastes from the site. Estimated clean up cost is $70,000.

Verona, Missouri

dioxin
environmental
damage

Three sites in the Verona, Missouri area have presently been identified as potential dioxin disposal sites. Investigations at the three sites are being conducted by EPA.

The dioxin wastes resulted from the production of hexachlorophene in 1969-1972 by the Northeast Pharmaceutical Company. The company rented equipment and operating space from Syntex Agribusiness during the period of hexachlorophene production. Wastes from this process were disposed at several sites. Several of the sites are not secure and environmental contamination may have occurred. The Northeast Pharmaceutical Company has declared bankrupcy.

EPA Region VII lab has completed the analyses water samples taken in the Baldwin Park area, one of the areas identified as a potential dioxin contaminated site. All samples taken indicated that water in the area meets or falls below the maximum contaminant levels of the National Interim Primary Drinking Water Standards.

Frontenac (St. Louis County), Missouri

About 29,000 gallons of waste oil containing 300-400ppm PCB's were stored on a local waste oil storage site owned by Bliss Oil Company. The one 15,000 gallon capacity tank was in poor condition, with drainage into a creek possible. The creek had eroded the foundation under the tank before the oil was removed. The owner removed the materials to a permitted facility after signing a Federal Consent Agreement.

PCB
potential surface
water
contamination

Montana

Butte, Montana - Radiation Problem

Monitoring data in Butte has indicated anomalously high levels of gamma radiation possibly caused by construction related use of phosphate slag in residential stuctures, driveways and streets. The primary health affects concern is associated with elevated levels of indoor radon decay products which have been found in the area. HUD has required an evaluation of indoor radon decay products prior to insuring home loans. EPA awarded a $72,000 grant to the Montana Department of Health and Environmental Sciences to further assess the problem and aid in EPA's radon standards setting program.

gamma radiation
air/human health

This concern over high radiation levels in Butte, is in part related to data which indicates a lung cancer rate of 54.3 per 100,000 per year while the Statewide average is only 30.1 per 100,000.

At present the extent of the problem is undefined and there is no identifiable source of funding to correct this problem.

NEVADA

Henderson, Nevada, 1980

The Desert Research Institute discovered thirthion pesticides in a Bureau of Reclamation well 200 yards from a waste disposal site. pesticides ground water

Access to the BMI-Stauffer Chemical Co. site for sampling soils and surface and ground water contamination has been refused to EPA contractors. EPA employees have entered the site to sample. Some surface waters in the area have been sampled. Preliminary analysis of samples indicates low levels of many organic compounds. It is believed that ground water contamination will be found. No assessment of damage costs are available at this time.

NEW HAMPSHIRE

Exeter, New Hampshire, 1978

Seventeen private wells adjacent to the Cross Road landfill were found to be contaminated with phenols, one well was 750 times drinking water standards. Lime was applied to the site, and the town has approved a $200,000 bond issue to supply public water to the area. There has been no restoration of groundwater.

phenols
drinking water
wells

Raymond, New Hampshire, 1979

Drums of chemicals were disposed of on the site; 30 drums are stored at the site and an unknown number are buried. State sampling of surface water revealed presence of organics. Surface water runs off the site to a tributary of the Exeter River. The State issued an order in April, 1979 for cleanup of the drums of chemicals and planned to divert surface waters around the site. EPA is investigating the site under CWA section 311.

organics
surface water

Nashua, New Hampshire

A private landfill is responsible for 1500 chemical wastes barrels and reported bulk disposal of chemical and industrial wastes. A State court judgement held the operator responsible but determined that the property owner was not (owner is mother-in-law to operator). The court further decided that the State should clean up the site and return for possible financial penalties to be leveled. There are two trailer parks also on the site, with new cement bases for additional trailers permitted to be less than 100 feet from barrels. Combined use of 208, Safe Drinking Water and 104 (CWA) monies are being used to develop hydrogeological information. The State has received a special appropriation of $300,000 to clean up this and another site. EPA is investigating for 7003 action to force complete clean up by the owner and operator.

NEW JERSEY

Deptford Township (Gloucester County), New Jersey

The Kinsley Landfill is approximately 50 feet thick and covers an area of about 65 acres on a 300 acre site. Kinsley accepts municipal wastes, sewage sludge and industrial wastes including some chemicals. The underlying aquifer contains concentratio;ns of phenols, cadmium, and lead which exceed drinking water standards. Fires have been reported at the site and workers have complained of skin and eye irritation, as well as nausea. The landfill's threat to the surrounding community has to yet to be determined.

phenols,
groundwater,
fires

Edison, New Jersey, 1980

The Kin-Buc landfill encompasses an area of approximately 220 acres in Edison, New Jersey and was utilized for the disposal of liquid and solid chemical, municipal and industrial wastes during the period between 1969 and 1977. The landfill site lies adjacent to the Raritan River and is traversed by two of its direct tributaries and is also hydraulically connected via underground aquifers to Mirror Lake, a popular recreation area. A pipe and several ditches convey drainage from pools of liquid wastes into Martins and Edmonds Creek, both of which flow directly in the Raritan River. $50,000 in CWA section 311 funds are being used to contain wastes and analyze leachate.

metals
organics
surface water

Elizabeth, New Jersey

At the Chemical Control site, located on the banks of the Elizabeth River, 40,000 drums of chemical wastes were stacked on a small site. Many contained highly explosive material, and the site posed a significant fire and explosion hazard to the area. The State of New Jersey has spent $300,000 for the removal of the most explosive and radioactive wastes. The State Department of Environmental Protection filed suit in January 1979 against the owners of the bankrupt facility to force site cleanup. Estimated cost of total cleanup was $10-15 million, and was projected to take at least three years.

chemical wastes
fire, explosion
surface water
air, soil
human health

On April 21, 1980, fire erupted at the site spewing clouds of toxic smoke over the waterfront section and forcing the shutdown of area schools and factories. Eight firemen were injured, one seriously, and a resident was treated for respiratory problems. Residents were advised to stay inside until fumes subsided. A major catastrophe was narrowly averted due to winds which blew the toxic clouds away from heavily populated areas.

Mantua, New Jersey

The LiPari Landfill in Mantua, New Jersey accepted chemical wastes from several producers including Rohm and Haas and Owens-Illinois. Chemical leachate wa entering a nearby stream, and fish kills were reported. The site was closed in 1970. A suit filed by the State for cleanup was in litigation for years. On March 21, 1980 Federal suit was filed.

toxic organics
ground & surface water
fishkills

Winslow, New Jersey

In 1972, four residental wells in Winslow, N.J. were closed due to contamination by phenols. A large manufacturer of pipe was identified as the source of the phenols. To remedy the situation, the company drained their disposal lagoons and constructed new lined lagoons. Nothing was done to restore the aquifer.

phenols
drinking water wells

Bergen County, New Jersey

For 40 years, a company manufactured a wide variety of mercury compounds at a location near the Hackensack Meadowlands in Bergen County, New Jersey. In 1974, after the manufacturing plant had been demolished, it became evident that the plant property was used as a dump for mercury wastes. High concentrations of mercury were detected in the soil. It is estimated that approximately 200,000 pounds of mercury were disposed at the plant site. Testing of surface waters at the adjacent Hackensack Meadowlands is currently underway to determine the environmental impact of this incident and other suspected cases of indiscriminate dumping in this area.

mercury,soil
surface waters

South Brunswick, New Jersey

Local residents began complaining in 1975 about water contamination in the area of the Jones Industrial Services Landfill. This site has accepted all types of chemical wastes, and significant amounts of organic chemicals were detected in six nearby wells. The State ordered the site closed. Damage to the aquifer is estimated at $300,000. A lawsuit filed by local residents was settled out of court for $10,000.

organics
drinking water
wells

Bridgeport, New Jersey

Bridgeport Rental and Oil Service is a 29 acre site which contains an 11 acre unlined lagoon with unknown quantities of waste oil and approximately 50 lined storage tanks with a total volume of greater than 4.5 million gallons of unknown chemicals. The waste oil contains over 40 Clean Water Act "priority" pollutants.

waste oils
unknown
chemicals
ground water

The site is located adjacent to Cedar Swamp. The water table is less than 5 feet below the surface although no public wells are located in the area. The water table layer of the aquifer is already contaminated and the deeper layer is threatened. The area is sparsely populated, but Chester, Pennsylvania is less than 2 miles downstream.

Newfield, New Jersey

The site is approximately 23 acres is located on property owned by the Shieldalloy Corporation. In 1970 the facility was closed down by the State Health Department because chromium wastes from the firms unlined lagoon forced the closing of private water wells in the area. Shieldalloy was required to suspend the process which produced the chromium wastes and replace the contaminated wells.

chromium
drinking water
wells

Plumstead Township (Ocean County), New Jersey

The Thiokol Corporation Dump has an unknown quantity of drums containing mercaptans, spent solvents and resins, which were dumped and buried over a two acre clearing in the Pine Barrens by Thiokol from the late 60's to early 70's. No waste records are available, but as many as 5000 cubic yards of wastes may have been dumped. Depth to groundwater is estimated at 15 to 20 feet, and private wells are located within 3/4 miles of the site. Surface water runs within 1000 feet of the site, but no analytical data on it is available. The site is located in a fairly remote rural setting, but dirt bike trails were observed in the area. No site barriers or waste management practices of any kind are evident.

chemical drums

surface water

Jackson Township, New Jersey

Formerly a sandpit, this 5 acre site received thousands of drums of phenolic and other organic wastes between August and December of 1971. Leaching from the site has resulted in the permanent loss of 148 private supply wells and contamination of an unknown portion of the Cohansey Aquifer. The area has been partially excavated for removal of the drums, but many buried drums of waste are thought to remain.

toxic organics

drinking water wells

Howell Township, New Jersey

Odor complaints from nearby residents were first recorded by Howell Township Health Officers in December 1974. 55-gallon drums had been opened and either poured directly on the ground or dumped in open pits. Chemical leachate now entered a nearby brook. To-date no action has been taken to cleanup the site.

toxic substances
ground & surface water

Deptford Township, New Jersey

This site is approximately 35 acres and is located adjacent to a RCA Corporation Distribution Center. The inactive site is covered to a large extent with grass but leachate is never the less produced at sufficient rates to pollute adjacent Big Timber Creek. Chemical analyses are planned to determine the compostion of the leachate.

leachate
surface water

Kearny, New Jersey

Meadowlands Sanitary Landfill is a 70 acre currently inactive landfill which allegedly contains unknown quantity and variety of municipal and industrial solid and liquid wastes. Elevated approximately 100 feet over the surrounding flatlands, the fill contains over 11 million cubic yards of mixed soil and municipal and industrial refuse. Located in a sparsely-populated residential area adjacent to a marshland draining into the Passaic River, the site generates large streams of leachate and high concentrations of methane gas. The nearest drinking water well is within a mile of the site. Monitoring wells and a leachate collection and recirculation system have been installed. No site security or waste records exist.

methane gas
drinking water
well

Pemberton Township, New Jersey

Pemberton Township Landfill is located near the Lebanon State Forest in eastern Burlington County, New Jersey. It consists of about 20 acres, two of which are actively being filled, while the remainder is covered with coarse local sand. The on-site operator claimed that no chemical wastes were ever accepted, but several full steel drums exposed by erosion were noticed during a site inspection. A residential well just below this site has been condemned due to organic contamination. Many acres of blueberries and cranberries are located less than 1/2 mile down stream from this site.

organic contamination
drinking water well

Hillsborough Township, New Jersey

This dump is located in Hillsborough Township in Somerset County. It is two arces in size and is located on a very steep terrain. Several hundred barrels were reportedly dumped here and leachate analysis by the New Jersey Department of Environmental Protection has identified high concentrations of toluene, chloroform, ethylbenzene, and carbon tetrachloride. Several high volume leachate plumes break from the base of the steep slope and drain into the Raritan River. Although the site is posted, it is still used by hunters.

toluene, chloroform
ethylbenzene

South Brunswick (Middlesex County), New Jersey

This is the Princeton Disposal Service, Inc. site, owned by Browning Ferris Industries, located in a suburban residential neighborhood. It was active from 1970 until closure in 1978 by administrative order. This resulted from a number of deficiencies and groundwater degradation as well as lack of further fill capacity. Under the site area is the old bridge - Farrington Aquifer. Contamination of surface water was reported in 1975. Contamination of groundwater was reported in 1976 (elevated COD and heavy metals). This area is severely eroded with visible damage to vegetation. Strong chemical leachate is observed. Tons of pesticides and other chlorinated hydrocarbons were known to have been dumped here. There is no site security.

pesticides,
chlorinated
hydrocarbons
surface water

Wall Township, New Jersey

Monitor Devices is a very small printed circuit manufacturer, located in an industrial area adjacent to Monmouth Airport in Wall Township, N.J. For a number of years, this firm has been discharging its electroplating rinse waters directly out the back of the plant and allowing them to flow down the street. Since being reported to the U.S. EPA, a small dike was built to pond water behind the plant and EPA Region II personnel have advised the owner of his NPDES responsibilities.

electroplating
waste waters

Garfield, New Jersey, 1971

Leaching from the industrial waste lagoons contaminated the groundwater and an industrial well in Garfield, New Jersey.

toxic substances
groundwater

Fairfield (Essex County)

In the 1940's metals originating from electroplating disposal lagoons contaminated industrial and public water supply wells.

heavy metals
drinking water well

Manville, New Jersey

According to State officials dust from an open asbestos dump operated by a major pipe manufacturer is a threat to public health. State environmental agency attempts to have the owner cover wastes with soil had been unsuccessful as of January 31, 1979.

asbestos
land, air

Phillipsburg, New Jersey

Ammonia and mercury laden wastes spilled or leaked from a chemical plant contaminated three industrial supply wells with a combined production rate of over 4,000,000 gallons/day. Since the problem's discovery in 1971, the plant has discontinued its mercuric waste stream; the groundwater quality problem remains.

ammonia, mercury
groundwater

Neshanic Station, New Jersey

In June 1968, five members of a farm family became ill after drinking well water. The water was contaminated with Lindane 20, an extremely toxic insecticide. The disposal of any empty pesticide container near the well was the source of the contamination.

Lindane 20
well water

Middletown Township, New Jersey

In 1973, 60,000 gallons of chemical liquid, including crankcase oil and petroleum wastes, spilled on the ground at the Martee Landfill in Middletown Township. Dead fish and the destruction of other aquatic life alerted N.J. environmental officials to the problem. State and local officials undertook cleanup actions.

petroleum wastes
aquatic life

Bridgewater Township, New Jersey

During the 1960's the Ortho Pharmaceutical Company discharged about 1000 gallons of volatile liquid organic wastes per week into unlined subsurface disposal beds. The wastes traveled one mile underground and polluted a nearby stream. The operation was discontinued in 1968, and all remaining wastes in the beds were removed. Polluted groundwater was not restored.

organic wastes
surface & groundwaters

New Brunswick, New Jersey

The A to Z Chemical Company has been storing drums containing chemical wastes since July of 1977. Many of the 8,000 drums on the property are leaking or improperly sealed. Labels on some of the drums indicate their contents to include solvents, monomer resins, and other flammable and non-flammable liquids and solids. As of March 1980, there are no plans for waste removal and the State has barely begun testing the chemicals.

toxic substances
flammable waste
groundwater

Winslow Township, New Jersey

The King of Prussia site is located in the southern corner of Winslow Township. It is an abandoned 80-acre liquid chemical waste facility with several lagoons. Linings of lagoons are now deteriorated. There is a large area of dead trees on the southeastern part of the property. The site is situated directly above the Cohansey aquifer. Groundwater movement is in a southeasterly direction towards the great Egg Harbor River. To-date no action has been taken to cleanup the site.

toxic substances
ground & surface water
dead vegetation

Woodland Township, New Jersey

Between the early 1950's and early 1960's two chemical dump sites were operated by 3M, Rohm & Haas, and Hercules. During that time numerous 55-gallon drums containing unknown chemicals were either burned or buried on site. The sites are located in rural area of NJ and are close to streams which drain into cranberry bogs. New Jersey Department of Environmental Protection analysis indicate high levels of phenols, toluene, and cresole. To-date nothing has been done to clean up the site.

toxic organics
ground & surface waters
vegetation damage

Pemberton Township, New Jersey

Approximately 1500 55-gallon drums were dumped on the Lang property prior to 1975. The drums were punctured and emptied onto the ground, then hauled away to an unknown area. No soil or water has been removed from the site. The site is in a very rural area and bounded by small streams that flow periodically on the East and North sides. Contamination is not thought to pose an imminent & substantial endangerment to health or the environment.

unknown wastes

Dayton - South Brunswick (Middlesex County), New Jersey

This is an active generator - on - site facility known as Mideast Aluminum Industries, Inc. There are 7 lagoons or ponds on site, 4 of which are now closed, while 3 are lined. The capacity of each is between 500,000 and 1,000,000 gallons. The main problem is the accumulation of aluminum sludge. There is also possibility of aquifer contamination. There was a large trichloroethane solvent spill in 1977.

aluminum sludge
possibility of
aquifer contamination

Wharton (Morris County), New Jersey

The on-site generator is identified as L.E. Carpenter Co., a manufacturer of vinyl coated wall and floor coverings. The company handles many chemicals, such as vinylene, xylene, naphthalene, plasticizers, placing residues in drums (most of the time) prior to burial. There is groundwater contamination showing presence of phthalate esters, xylene, oil and grease. Municipal water supply wells are in the vicinity, one being 3/4 mile downstream. There is surface run-off of chemicals into the Rockaway River less than 150 feet away. Observed along the river bank is discolored standing water, discolored silt as well as discolored roots, flora and tree stumps. Inspection found badly contaminated water in the plant's storage tank. There is evidence of ample pollution on and near this site.

vinylene, xylene,
naphthalene,
phthalate esters,
oil and grease.
groundwater
contamination

Monroe Township, New Jersey

Princetion Disposal (B.F.I.) is an inactive,improperly closed site which generates leachate streams adjacent to a new housing development, where the homes have private wells. An administrative order has been served requiring B.F.I. to correct the problem by adequate analysis, diversion ditches, adequate cover, and leachate disposal and treatment.

groundwater &
well contamination

Pleasantville, New Jersey

The Prince Dump accepted large quantities of chemical waste prior to 1973. Nearby residents reported seeing 5500 gallon tank trucks dump chemical waste 4-6 times daily. The nearest private well is 150 feet away and the Atlantic City well fields are 4,000 feet from the site. To-date no action has been taken to cleanup the site.

toxic substances
ground water

Cherry Hill, New Jersey

methane gas
water well
organic odors

Earlton Sanitary Landfill is an approximately 10 acre site in Cherry Hill, Camden County, New Jersey. Although dumping in this old gravel pit ceased some 10 to 15 years ago, substantial quantities of methane are still being generated. Wells in this area have been contaminated with trichlorobenzene and the nearby residences have been placed on city water. Monitoring wells, located along the east side, have a strong organic odor and show groundwater at a depth of 10 to 15 feet. This site has been converted to a park and in places, the silt loam capping has been eroded away by dirt bike use.

Camden, New Jersey

TCE
water wells

The Harrison Avenue landfill is located in an abandoned gravel pit bordering the Delaware River just north of Camden, New Jersey. The site was active until 1976 and supposedly accepted only municipal trash. Contamination of a nearby well by TCE indicates that hazardous materials were probably dumped as well. Leachate from the site runs a direct path over tidal mudflats to the Delaware. The site has a large residential population nearby.

Monmouth County, New Jersey

leachate plumes
surface water

Seaview Square is a two-story shopping mall built in part, on an inactive landfill in eastern Monmouth County, N.J. The portion of this site not covered by the mall and its parking lots comprises some 25 acres. Only coarse local soil materials cover this area, and wind and water erosion is judged extreme. Small, strongly smelling leachate plumes were seen breaking through the parking lot pavement and a large plume emptied from beneath the parking lot into an unnamed tributary of Deal Lake. All parts of this site are readily accessible to the public.

Kearny, New Jersey

chromium wastes
recreational use

The Kearny Chemical Dump is located in Hackensack River marshlands between Kearny and North Arlington in Essex County. It consists of about 2 acres of filled fly ash and chromium wastes. Several drums dumped here were sampled by state personnel and analysis results are pending. Construction and industrial refuse is scattered along the water's edge and the ground is stained in many areas. Dirt bike tracks indicate occasional recreational use of the site.

Kearny, New Jersey

chromium, surface water

Formerly the location of a chromium reprocessing plant operated by Diamond Shamrock, this site totals approximately 15 acres. Waste chromium sludges were mixed with soot-ash, iron salts and lime, and dumped to depths of 5 to 10 feet over approximately 5 acres of the site. It is estimated that 40-80 thousand cubic yards of these chromium wastes were dumped here. Sampling and analysis by New Jersey Department of Environmental Protection detected 60,000 ppm Cr in soil (1500 ppm hexavalent) and 300 ppm in leachate which drains to the Hackensack River. The water table is very shallow at this site, within 5-10 feet of the surface, and sinkholes have developed.

Toms River, New Jersey

organic dyestuffs
drinking water
aquifer

The Toms River Chemical Company manufacturer of synthetic organic dyestuffs and epoxy resins is alledged to have disposed of many of its chemical wastes in several on-site landfills. The chemical wastes are believed to be contaminating the underlying drinking water aquifer. Site investigations are still underway.

Mantua Township, New Jersey

housing development
well water
leachate

This landfill, currently owned and operated by Helen M. Kramer, covers an area of about 60 acres and is roughly 40 feet thick. At present, the landfill accepts primarily municipal waste, sewage and sewage sludge, and non-chemical industrial waste. In the past, the landfill has accepted various other types of industrial chemical waste including hazardous waste. To the north and west of the site are cultivated fields, while to the southeast is a housing development. Directly east of the landfill is Edward's Run Creek which directly accepts leachate. State analyses of groundwater under the site have verified contamination of the water beyond potable water standards. Several isolated homes adjacent to the site probably use well water.

Trenton, New Jersey

mercury
surface water

This 1.5 acre site was purchased by Delaval Corp. from the H.K. Poter Co., a brake and clutch manufacturer. Over a number of years, Porter dumped asbestos and mercury laden wastes on this site. Today, runoff and leachate from this barren, uncapped site carry asbestos and other contaminants into Assunpink Creek. The site is only partially fenced and quite close to a residential area. Use of this site by dirt bike riders likely increases an already high amount of airborne asbestos.

Ringwood Boro, New Jersey

paint solvents
& sludges

The Ringwood Iron Mines consist of 12 iron mine shafts and open pits which were commercially active in the late 1800's. As late as 1967, Ford Motor Co. used the abandoned shafts and pits to dump unknown quantities of spent paint solvents and sludges. The local Solid Waste Authority has added municipal garbage and ink in recent years. Groundwater and bedrock are less than 5 feet below the surface site. Residences are located adjacent to and on top of the dump areas. Little or no analytical data exists documenting possible contamination of potable water supplies. No site barriers exist.

Bellmawr Boro, New Jersey

The Fazio Landfill is a 50 acre inactive site located on a mudflat of the Little Timber Creek near the junction of Routes 42 and 295 in Camden County. Wastes range from municipal trash and sewage sludge to dyes and other industrial chemicals. A residential area and a public well field are within 1000 feet of the site. The facility is currently under review for an extension of its landfill permit.

industrial
chemicals
surface water

Mt. Holly, New Jersey

The Landfill and Development Company operates a 20 acre landfill on the banks of Rancocos Creek and adjacent to several housing developments. Private water wells in the area, contaminated with organic chemicals, have been replaced by a deep-well and water system at the cost of the Landfill and Development Company. The state required the company to install a liner at the fill and a groundwater pumping and treatment system to control the spread of contaminants but the effectiveness of the system is questionable. Groundwater analysis reveals dichloroethylene, trichloroethylene and traces of BHC, dieldrin, endrine, chloroform, and carbon textrachloride.

organic chemicals
drinking water wells

Marlboro Township (Monmouth County), New Jersey

Burnt Fly Bog is an abandoned oil recovery landfill approximately 1/2 mile long and 1/4 mile wide. The whole sit is about 160 acres. Allegedly chemicals were dumped into sandy lagoons until the mid 60's. Dikes surrounding the lagoons are eroded and breeched in several places. The site is devoid of vegetation. Some 300 hundred drums, in various states of decay are visible. The contents, if any, is unknown. There are many oily water pools on the site. There are residences and private water wells nearby. Underlying the bog is an outcrop of the Englishtown Sand Aquifer. PCB's have been identified at the site. The sediment analysis shows a concentration of 20 ppm, but no PCB was found in water. Other chemicals are suspected.

oil, tar, PCB's
aquifer
endangered

Trenton, New Jersey

exploding drums
damaged vegetation

The Duck Island Landfill is a 56 acre abandoned fill, located in a fairly remote industrial area south of Trenton, New Jersey on the Delaware River floodplain. It is adjacent to county parkland and a wetland which may possibly support nesting eagle populations. No records of waste quantities or types exist, and no sampling or chemical analyses have been performed for the site. Exploding drums of waste were observed during a landfill fire in the late 60's. Erosion, leachate migration, and damaged vegetation have been observed. There are no drinking water wells in the area. There are no site barriers and extensive open dumping of miscellaneous debris has occurred here.

Freehold, New Jersey

- The Lone Pine landfill has been accepting waste materials of all types since 1967. Large numbers of illegally deposited chemical drums were found on the site. The drums contained unacceptable amounts of certain toxic substances. A chemical fire occurred at the landfill on June 23, 1978, which severely disrupted landfill operations and caused large amounts of liquid waste materials to flow off-site. The problem still has not been remedied as of April 1980.

toxic organics
ground & surface water
chemical fire

NEW MEXICO

Albuquerque, New Mexico, 1970

Threee children of a local family became seriously ill after eating a pig that had been fed corn treated with a mercury compound. Local health officials found several bags of similarly treated corn in a community dump.

mercury

human health

NEW YORK

Warwick, New York 1979

A judge temporarily closed a local landfill that had been accepting chemical wastes, and ordered Grace Disposal and Leasing Ltd., the landfill's owners to show cause why it shouldn't be closed permanently. Leachate leaking from the landfill entered Greenwood Lake, which supplies water for a reservoir serving Newark and a dozen other New Jersey communities. No contaminats were found offsite by EPA.

toxic substances
surface waters

West Glen Falls/Queensbury, New York

Authorities stated that they fear polychlorinated biphenyls may be entering homes on a lot formerly used to recycle heat retardant capacitors. The PCB's may have caused a local lack of vegetation; no health effects have been discovered. The State paid for cleanup.

PCB's
land

New York City (Queens County), New York

In the early 1970's a trucking firm was regularly disposing of chromium and zinc-containing sludge in a private dump in a swampy area. The sludge has contaminated the groundwater.

heavy metals
surface & ground
water

Saratoga County, New York

Several sites in Saratoga and Washington countries were found to have received PCB materials in the form of capacitators,rolled dielectric paper, and waste liquids. Although the health department had not declared any of the sites a public health hazard or a public health nuisance some people have suffered chloracne and possible PCB poisoning; the town supervisor advised the nearest residents to vacate their homes.

PCB's
human health

cadmium
surface waters

Cold Spring, New York, 1953-1959

Wastes from a nickel-cadmium battery plant polluted a marshy area, which leads into the Hudson River. Tides are slowly flushing cadmium into the Hudson, threatening fish as well as a bird sanctuary at the mouth of the cove. According to the New York State Department of Environmental Conservation, no efforts have been made to remove the cadmium from the cove.

organics
surface water

Delaware County, New York, 1974

An unknown amount of organic tarlike residue from acid manufacture washed into the West Branch of the Delaware River from a waste lagoon at an abandoned plant.

Big Flats (Chenung County), New York

In the 1960's Agway, Inc. dumped waste nitrate materials from its fertilizer plant into a lagoon. The lagoon discharged nitrates into surrounding soil, and then into water. Approximately twenty domestic wells had nitrate levels above 100 ppm and were unusable for drinking. Families had to drink bottled water until a public water supply line became available for most residents.

nitrate
ground & surface water

Glenn Falls, New York

The Caputo PCB disposal site near South Glenn Falls, N.Y. is emitting vapors containing significant concentrations of PCB's. High PCB concentrations were detected ranging from 0.05 ug/m3 - 3ug/m3 in the winter of 1977 and up to 300 ug/m3 in the summer of 1978. The National Institute for Occupational Safety and Health (NIOSH) recommends that PCB's in the work room environment should be less than 1.0 ug/m3. It is possible these volatizing conditions may have existed since 1960. The site has been capped since April, 1979.

PCB's
air

Hudson River, New York

In 1974 striped bass in the Hudson River were found to contain PCB's at 70 times the FDA limit. An estimated one-half million pounds of PCB's are in the river sediment, with General Electric plants in Hudson Falls and Fort Edward the major sources. In 1976 GE agreed to contribute $3,000,000 towards cleanup with the state matching that amount. Later studies indicating dredging of "hot spots" would cost $25,000,000 and a full cleanup $204,000,000. The State has requested Fed. assistance.

PCB's
surface water

Middleport, Niagara County, New York, 1975

The FMC corporation dumped one of its pesticides (Carbofuran) into a lagoon used for storing high-pH ammonia containing wastes. Ducks and geese, which normally use the lagoon without incident during migration were killed by the Carbofuran.

pesticides
ducks, geese

Niagara Falls, New York

The Hyde Park landfill is situated in the extreme northwest corner of the City of Niagara, New York. The 15 acre landfill is triangular in shape and contains two drainage

organics,
pesticides
air, ground &
surface water

ditches which empty into Bloody Run, a tributary of the Niagara River. From 1953 to 1975 the Hooker Chemical Company disposed of 84,000 tons of hazardous wastes containing hexachlorocyclopentadiene derivatives, chlorendic acid (a thiodan precurser), Mirex, Lindane derivatives, Eudosulfan and at least 21 other organic and inorganic chemical wastes.

Dioxin, benzene hexachoride (BHC), tetrachloroethylene, trichloroethylene, benzene, hexachlorobenzene (BHC) tetrachlorobenzene, chlorobenzene, and phenol have been detected migrating from the landfill at levels where contact with the chemicals would adversely affect human health. The first six of these chemicals are carcinogenic. The remainder are highly toxic, causing liver and kidney damage as well as central nervous system disorders.

It is estimated to cost $6,080,000 in remedial actions to clean this site. A federal suit has been filed against Hooker Chemical Corporation.

Niagara Falls New York

The Love Canal landfill is located in the southeast corner of the City of Niagara Falls, New York. The landfill consists of two 70-foot strips of land abutting on either side of a 60-foot canal. From 1942 to 1952 Hooker Chemical Corporation disposed of 21,800 tons of hazardous wastes containing dioxin and hexachlorobenzene, as well as other toxic organic and inorganic wastes, at the Love Canal site. Dioxin, tetrachloroethylene, chloroform, dichloroethane, benzene hexachloride, hexachlorobutadiene and dichlorobenzene, all carcinogens, as well as trichloroethylene, toluene and phenol have been found to have migrated from the landfill in levels sufficient to adversely affect human health.

organics,
pesticides
air, ground &
surface waters

239 homes and a grammar school were built on land around the canal. Three storm sewers underlie the immediate area of the Love Canal landfill and ultimately flow into Black Creek, a tributary of the Niagara River. Hazardous amounts of the above substances have been found in the sediments and waters of Black Creek.

It is estimated that it will cost $45,000,00 in remedial actions to clean the site. Suit has been filed in District Court against Hooker Chemical Corporation by the United States for these measures. EPA awarded a $4 million grant to the State to use at the site. Site remedial action has been taken.

Niagara Falls, New York

The 102nd St. site is a 21 acre landill which borders on the Niagara River and is surrounded by private homes, parks and productive wetlands. The City of Niagara Falls uses the Niagara River as a drinking water source. From the early 1940's to 1972 Hooker Chemical Corporation and the Olin Corporation disposed of 23,500 tons and 66,000 tons of hazardous wastes on the site, respectively. These wastes consisted of Lindane, as well as other organic and inorganic hazardous materials. Lindane, a carcinogenic pesticide, and tetrachlorobenzene and phenol, both higly toxic, have been found to have migrated from the disposal site.

organics,
pesticides
ground & surface
waters

It is estimated to cost $16,500,000 in remedial measures to clean the site. Suit has been brought in District Court against Hooker Chemical Corporation and the Olin Corporation by the United States for these measures.

Niagara Falls, new York

organic, pesticides,
drinking water

The "S" area landfill is a 4-acre site in the south central section of Niagara Falls, New York. It is land which has been reclaimed from the Niagara River by filling with cinders, stone, slag, dirt and carborundum abrasives. Between 1947 and 1975 Hooker Chemical Corporation disposed of 70,400 tons of hazardous materials at the "S" landfill. These materials included endosulfan, benzene hexachloride, as well as other organic and inorganic hazardous waste. Tetrachloroethylene, hexachloride, all carcinogens, have been detected migrating from the land fill as evidenced by their presence in the public drinking water supply waters.

It is estimated that it will take $50,000,000 in remedial measures to clean this site. Suit has been filed in the District Court against Hooker Chemical Corporation to obtain these measures.

Olean, New York

Between 1966 and 1972, spills, pipe leaks and dumping by C.F. Insustries at their Olean, N.Y. site caused surface and ground water contamination. The company was ordered to clean up the site, and pumping and treatment operations to reduce the nitrate concentrations in the groundwater began in 1972.

ground & surface water

Huntington (Suffolk County), New York, 1978

The Suffolk County Health Department discovered pollution in two industrial wells across the road from the Huntington town dump. The ground water had become contaminated with chlorides, sodium, manganese and iron; methane gas was discovered in 1976 and 1977, and in 1978 reached a 62 percent level in one of the four test wells. Residents of two nearby homes also complained that their water tasted so bad as to be undrinkable.

methane gas, sodium chlorides

ground water

Islip (Suffolk County), New York, 1978

Hickey's Carting allegedly dumped chemicals containing an estimated 4,000 gallons of the industrial cleaner trichloethylene in the town dump. Trichloroethylene has been found in numerous wells throughout the area.

TCE

drinking water wells

Onondaga County, New York

Allied Chemical discharged about 25 pounds per day of mercury to Onondaga Lake. Mercury levels in fish exceed FDA levels. Allied has sought to remedy the situation, but the lake is still contaminated and fishing is still banned.

mercury
surface water,
food chain

South Farmingdale, New York

Plating wastes from aircraft manufacture during World War II were discharged into seepage pits and lagoons in South Farmingdale. Metallic ions leached from the plating wastes, contaminated a shallow water table aquifer Long Island, a designated sole source aquifer. The polluter, Liberty Aircraft is now out of business.

heavy metals
ground water

Saratoga County, New York

The New York State Department of Health has declared the Palmer site in the town of Stillwater a public health hazard. The site received waste materials from General Electric at Waterford, which manufactures silicone products. Elevated levels of metals, benzene and toluene have been found in leachate samples. Adjacent property owners have complained of skin rashes and various illnesses.

metals, benzene,
toluene
human health

Cattaraugus County, New York

Chromium-bearing plating wastes were dumped in a pit in 1968 at the Vanderhorst Company. Chromium leached from the site into groundwater and contaminated an industrial cooling well.

chromium
groundwater

Babylon, Suffolk County

Leachate has steadily entered the shallow aquifer providing water supply to the residents and formed a plume two miles long, one-half mile wide, and 70 feet thick, from a landfill operated since 1947. Groundwater is the only source of drinking water on Long Island.

groundwater

Oswego, New York

Seventy-five hundred drums of chemical wastes of unknown composition are stored at the Pollution Abatement Services, Inc. site. An equal number of drums is stored in an abandoned milk plant in the Town of Mexico. Wastes have overflowed dikes at the Oswego site killing vegetation in an adjacent wetland. The State of New York has appropriated $750,000 for remedial work at the site. Bids for the cleanup were far above the amount of money available. S.C.A. Services disposal company has removed about 1200 barrels from the abandoned milk plant.

toxic substances
land, surface water

Pendleton (Niagra County) New York

The site, known as Quarry Lake with a surface area of 22 acres, belongs to Frontier Chemical Waste Process Inc. The lake is some 15 feet deep. A 3 to 6 foot high berm surrounds the entire lake to prevent accidental wastewater discharge into nearby Bull Creek and wetlands adjacent to the site. There are a number of heavy metals in solution in this lake and its pH is about 3. Wastewaters from the site will be treated before discharge. There is the possibility of overflow. The site has been inactive since 1976.

heavy metals in solution
possibility of overflow

Bethpage/Hicksville, New York

For 19 years, Hooker Chemical pumped approximately 2 million gallons a year of waste water containing carcinogenic vinyl chloride into several nearby sumps. Fourteen wells in the Magothy aquifer, including five public supply wells serving 100,000 customers, are contaminated by industrial organic wastes. Hooker stated that it had stopped dumping wastewater in 1974.

organics
groundwater
drinking water wells

West Nyack, New York

In 1978, sixteen private wells in West Nyack had to be closed due to contamination by trichloroethylene. Various industries within one mile of the site used the chemical, but the source of contamination could not be determined. The Spring Valley Water Company is supplying water to the affected residents. The aquifer has not been restored.

trichloroethylene (TCE)
drinking water wells

Glen Cove, New York

In 1977-78, five of the eight public water supply wells for Glen Cove, Long Island were closed after high levels of chlorinated organic compounds were discovered. The source of the contamination could not be located. The USEPA has funded a pilot water treatment plant for Nassau County.

organics
drinking water wells

Staten Island (Richmond County), New York

hazardous, flammable, incompatible wastes

The Federal Government learned of this site in December 1978 when the U.S. Coast Guard investigated an oil sludge spill into Neck Creek adjacent to this 5 acre site. It is operated by Chelsea Terminal, formerly known as Positive Chemicals. Throughout 1979, until its closure ordered by the New York State Department of Environmental Conservation, the operators have accumulated a great quantity of chemicals and waste oils in 55-gallon drums, semi-trailers, semi-tankwagons and in the tank farm (nine 90,000 gallon above ground tanks, located in the center of the facility). Many hazardous, flammable and incompatible wastes on this site are now being identified, separated, sold and removed. Private residences are located within 1/4 mile.

Wheatfield (Niagara County) New York

This is a 50 acre site. It is owned by Niagara County Refuse Disposal District and known as Wheatfield Landfill. Hazardous chemicals were deposited on site from 1968 through 1976, when it was closed. Among the chemical manufacturers using this landfill were: Hooker-Durez (oil and grease, phenolic resins), E.J. DuPont denemous (off-grade polyvinyl alcohol), Olin (lime and brine sludge with mercury), Goodyear (PVC skins, PVC emulsions, PVC floor-sweepings, thiazole polymers). Hooker of Niagara Falls disposed hypo mud, soil and chemical wastes from the southern section of Love Canal. There are residences in the immediate vicinity of the landfill. The Niagara River is less than 0.5 miles away. The site is subject to flooding and there is leachate run-off, leachate contamination, odors and insufficient cover.

hazardous chemicals
leachates, sites subject
to flooding

Sardinia (Erie County), New York

This 50 acre site is privately owned and has been active for at least 25 years. It is known as Chaffee Landfill, formerly Sardinia Sanitary Landfill, and handles residential, commercial and industrial wastes. There are allegations of midnight dumping. Leachate from the site shows the presence of a number of pesticides. Private wells in the vicinity and in private residences do not show any substantial contamination. A fish kill was reported. Hosmer Creek flows nearby. Currently the most important problem is the improper cover.

pesticides,
leachate

Ramapo (Rockland County), New York

This is a 45 acre active municipal landfill, known as Torne Valley RDA and also as Ramapo Sanitary Landfill. It accepts mixed minicipal waste, but also previously accepted (cosmetic) sludge from Avon. Midnight dumping has been observed. Erosion is of some concern. Leachate is bleeding into groundwater near new wells constructed by the Spring Valley Water Supply Company. Official concern is that substances, such as mercury, selenium, cadmium and lead found in wastes may reach the well water and also surface waters supplying Northern New Jersey.

leachate
possible surface
and groundwater
contamination

Johnston (Fulton County), New York

The Johnston Landfill is an active 68 acre "sanitary" landfill which received tannery waste sludge (from local tanneries) high in chromium and other metals up to 1977. Leachate has contaminated a creek and is affecting 3 private wells.

leachate
well contamination
fish kill

Hamlet is Narrowburg, Town of Tunsten
(Sullivan County), New York

This is a 7 acre active site, 11 years old. It is known as Tusten Landfill, formerly Cortese The sites accepts municipal waste, demolition and building debris. In the past, it accepted drummed chemical waste, believed to bo paint thinners and solvents. The drums are severely weathered. There is concern that leachate flow may reach the Delaware River and one of the town's water supply wells. The soil on site is permeable and there is ponding. There is no cover on most the landfill. At present, there are no health or environmental effects.

paint thinners,
solvents
leachate flow

Rotterdam (Schenectady County), New York

Schenectady Chemical Co. is next to the Mohawk River and stores drums of chemical waste on a slab of black top. There is also a sludge pond. A neighboring firm is finding phenol in their water. The firm handles large volumes of chemicals from tank cars, and allegations of spills have been made. The plant is close to the town well fields, but there is no evidence of contamination.

chemical wastes
ground water &
soil contamination

Nassau (Rennselaer Country), New York

The Dewey-Loeffel Landfill was an oil reclamation and oil storage and salvage operation. The site has been inactive for 5 or more years. PCB oil was stored and possibly spilled. Nassau Lake fish are showing PCB levels. A nearby well has been found to be contaminated with benzene.

PCB contamination
well & lake

Syossett (nassau County), New York

The Syossett Landfill operated for 40 years (until 1975) and accepted all types of waste including chemical waste from Hooker Chemicals. The site is in a suburban location on Nassau County's primary ground water recharge area. There is contamination of a deep well supplying Jericho Water District. Test wells are being installed to evaluate the problem.

chemical wastes
ground water
well contamination

Mechanicsville, (Saratoga County), New York

The Dyer Landfill site was a small ravine, filled with bark from local lumber mills. The site is full of leachate (due to a spring in the ravine) which tends to overflow in the Spring. The overflow has twice polluted one of two lakes and a stream supplying the municipal water plant. It is not capped, and the owner has not made any recent corrections to preclude another overflow and resultant contamination of the stream.

leachate
contamination
drinking water
reservoirs

Oswego, New York

The Volney Landfill (also known as Oswego Valley Sanitary Landfill) has 8000 drums of waste buried at the site. Leachate contaminated with toxic chemicals may pose a health threat to groundwater users in the area. Six potable water wells have a trace of organic chemicals. One of the wells has 10 ug/l of benzene. The owner of one of the wells is suing the County for chemical contamination of their wells.

leachate,
benzene,
drinking
water wells.

Oswego, New York

The Clothier Property Site (also known as Ox Creek Site) has 500 drums of waste stored at the site. Leaks from the drums, and leachate from the site may be entering Ox Creek, a tributary of the Oswego River. The City of Fulton public water supply well field is near the Oswego River downstream from the mouth of Ox Creek. The New York State Department of Health analyzed a soil sample from the site and found 92 mg/kg of PCB's.

leachate,
groundwater,
Public Water
Supply

College Point, New York
(PCB Pool)

A lagoon of approximately 500,000 gallans of waste oil, contaminated with PCB´s in the 240,000 ppb range was found in an abandoned field belonging to the New York City Dept. of Real Property. The oil was probably dumped illegally since the site is relatively open. There is a hazard to children or anyone wandering in the area. Chemical fires occured at the site on February 15 and April 24, 1980. An acceptable site for incineration or disposal of the PCB´s has not been found yet.

PCB contamination of bay - danger to public

Hicksville (Nassau County), New York

The Hooker Chemicals & Plastics, Co. is a manufacturer of many chemicals, including vinyl chloride. Residue of vinyl chloride disposed of in open catch basins in sandy soil has infiltrated 14 wells at a neighboring plant which must bring in potable water now. The plant is located on the crest of a sole source aquifer. Potential for contamination of other water sources in serious. Tst wells are now being installed.

vinyl chloride ground water, well contamination, sole source aquifer

NORTH CAROLINA

Kinston, North Carolina

Contaminated fertilizer from a Smith-Douglass plant damaged 6,000 acres of tobacco in North and South Carolina. Tordon, a herbicide manufactured by Dow Chemical Co., was believed to be the contaminant. Smith-Douglass shut down its plant for an investigation of the contamination.

contaminated herbicide
crop damage

Mecklenburg County, North Carolina (Kelly Road Dump)

About 200 55-gallon drums of chemicals, including acetone and possibly toluene were dumped into a landfill. The chemicals may have migrated into a nearby residential well. The State of North Carolina spent $50,000 to clean up the site.

organics
drinking water well

North Carolina, New Hanover County

Groundwater contamination resulting from improper disposal at the New Hanover County Landfill was shown to have contaminated 17 private wells in the vicinity. Approximately twenty additional private wells are subject to potential contamination in the future. The County is providing drinking water to residents with impacted wells and other area residents whose wells are potentially subject to contamination. EPA is presently proceeding with court action against the State, County, and operators of the landfill. Monies have been expended by local, State and Federal agencies. The county is presently engaged in applying for HUD and State funding to aid in deferring total costs of supplying the impacted area with a water supply system. Court action is pending.

industrial wastes

drinking water well

Bowdin, North Carolina, 1971

Open dumping of pesticide containers resulted in a fish kill in Bear Swamp Creek, Duplin County, on July 6, 1971. Jugs of the insecticide, Mal-Dan Tobacco Spray, were apparently dumped onto the creek bank. Some of the jugs appeared to have broken when they rolled into the creek, releasing endosulfan, a chemical insecticidal agent.

pesticides

surface water, fish kill

Clinton, (Haywood County), North Carolina, 1974

Approximately one thousand gallons of petroleum-based cleaning fluids were dumped at a landfill and leaked into a tributary of Hominy Creek. Cattle died after drinking from the polluted water. The town of Clinton compensated the cattle owner and the waters were decontaminated by surface skimming.

cleaning fluids

surface water, cattle died

Holly Ridge, North Carolina

Approximately 900 drums of 2,4 dinitrophenol are stored in a collapsed warehouse. Some of the drums have burst and the material has spilled onto the warehouse floor. The building is accessible to children and the material can be absorbed through the skin. The town of Holly Ridge and the

2,4 dinitrophenol

warehouse

State of North Carolina have filed suit (public nuisance) to get the owners to remove and dispose the material properly. EPA is assisting the State and local governments with affadavits. The apparent owners are Renroh Inc., and Continental Trading Company.

PCB Spill in North Carolina

Approximately 250 miles of North Carolina highways were sprayed with PCB's. The State has taken action against the suspects in the case. EPA is assisting the State in cleanup and disposal operations. Contaminated soil remains along roads approximately 3 feet wide and 6 inches deep.

PCB's
soil

OHIO

Negly, Ohio, June 1974

A citizen of Negly complained about the spillage of hydrochloric acid, oil and other wastes into Little Beaver Creek. The alleged source of pollution was Ecological Service, Inc., of East Palestine now owned by Browning Ferris, Inc.

HCA
suface water

Monroe County, Ohio 1975

An aluminum plant grossly contaminated the groundwater under its site with flourides, high pH and other chemicals; the water was also discolored. The source of contamination is leachate from a used tailing pond and used potline pits.

flourides,chemicals
groundwater

Lake County Ohio, 1971

A trucking firm that hauls bulk chemicals, washes residues from a trailer into two lagoons on its property. About 5,000 gallons of wastewaters, including phenols, organic solvents, phosphates and suspended solids, are washed into the lagoon each day. By March 1971, wells on adjacent property were contaminated; cattle also refused to drink from a stream polluted by effluent from the lagoons.

organics
ground & surface
waters

Shawnee Lake, Ohio

On June 2, 1971, the U.S. EPA, at the request of the State of Ohio, provided direct support in the removal of Endrin (a highly toxic pesticide) which had been deliberately dumped into a small lake near Portsmouth, Ohio. EPA provided the expertise in design and construction of an on-site carbon adsorption filter which treated the lake water and removed the Endrin.

pesticides
surface water

Summit National Liquid Services, Portage County, Ohio, 1979

A liquid industrial waste treatment and disposal company is located on an 11 acre site in Portage County, Ohio. Currently, several thousand leaking barrels, a 300,000-gallon cracked and leaking concrete storage tank, and other vessels of varying sizes are being used to store wastes including acetone, MEK, toluene, latex, oils, and mirex. Residents live within 200 feet of the site. The site presents a fire hazard as well as a source of soil and groundwater contamination. Also present is the possible contamination of drinking water in the reservoir. The site has been closed since 1978 by order of Ohio EPA and is currently being cleaned. Total cleanup and abatement costs are estimated at over $2,000,000.

MEK, toluene, latex
oil, mirex
fire hazard
ground water

Massillon, Ohio The Tuscarawas River and shallow ground water were contaminated as a result of induced infiltration into the permeable sand and gravel aquifer. When public water-supply wells became contamiminated, the contamination was traced to the discharge of by-products from an industrial glass plant to the river. The problem developed when the river was diverted to runover a more permeable bed. The water supply wells near the river induced infiltration of river water to the wells. The industry shut down in 1977 as a result of new state water-quality standards. New sources of ground water are being sought away from the river	chemical waste public water
Laskin Green house and Waste Oil company, Jefferson, Ohio, 1979 Improper storage and disposal of PCB contaminated oil. Facility accepted approximately one million galloons per year of waste oil and solvents which they store in tanks on the property before burning as fuel in the boilers or spraying on roads in surrounding countries. Department of Justice filed case at EPA request on 4/24/79 seeking proper storage and disposal of PCB contaminated oil. A consent decree is now being worked out with the site owner.	PCB, waste oil

Cleveland, Ohio

In July 1979, it was reported that Chemical & Mineral Reclamation Inc. improperly stored chemicals in two warehouses. A fire department inspection uncovered thousands of leaking chemical drums stored at the unsecured site. A U.S. District Court ordered clean up of the site and all drums were removed by November, 1979.

mixed chemicals
hazard

Walton Hills, Ohio

In 1979, the Ohio Attorney General filed a $45 million damage suit against the Dow Chemical Co., BASF Wyandotte and Dow Chemical of Canada. The suit charged illegal dumping of mercury into Lake Erie and asked for $10 million for cleanup, $25 million for compensory damages, for past, present, and future damage, and $10 million for punitive damage.

mercury
surface water

Lisbon, Ohio

Highly mineralized fluids, the products of neutralized spent pickling liquids, began to leak from a disposal pit at Chem-Lime Corp. In 1970, fish were killed in nearby Wilson's pond. In 1971, Wilson's pond overflowed into Little Beaver Creek, causing amajor kill of some 77,000 fish. The State filed suit in 1972 or 1973 and a consent order was entered, requiring the company to install a collection system and neutralization plant. The effluent to Beaver Creek is now under NPDES permit.

pickling liquids
wildlife

In 1978, the State filed suit again due to ammonia discharges. Settlement negotiations are underway involving a shut-down schedule and civil penalties. Chem-Lime will be required to reclaim the area.

Hamilton, Ohio

In 1976, a tank car located at the Chem-Dyne Corp. disposal site in Hamilton, Ohio overheated and leaked fumes. Subsequently, the waste disposal firm filed a multi-million dollar suit against the city, claiming that Hamilton had hurt business.

organic solvents
cyanide chemicals
soil
ground & surface waters

The Chem-Dyne Corporation occupies approximately four acres in downtown Hamilton. The ground under the site is porous and sandy. Thousands of 55-gallon drums and seven large silo tanks are stored on Chem-Dyne's premises; containing over 1 and 1/2 million gallons of hazardous chemicals, including phenol, acetone, xylene, toluene, hexane, 1,2-dichloroethane, 1,1,1-trichloroethane benzene, dichlorobenzene, napthalene, cyanides and arsenic. As part of the operation at the Chem-Dyne site, large quantities of hazardous chemicals are mixed in several open pits; in addition, chemicals have been discharged through pipes, drains or other confined conveyances on or around the Chem-Dyne plant, to a nearby canal and/or the Great Miami River. In December, 1979 the EPA filed suit seeking a court injunction to remove thousands of drums filled with chemicals from their site after similar State orders had been ignored. A federal judge refrained from issuing the injunction until the receiver appointed in State court had an opportunity to cleanup the site. EPA is monitoring the progress of this cleanup and is proceeding with discovery.

OREGON

Alkali Lake, South Central, Oregon, 1980

This is an 10 acre state owned desert disposal site which received approximately 25,000 drums of known pesticide manufacturing wastes from 1969 - 1974. The State ordered the site closed in 1972, and unsuccessfully sued site owners for cleanup. In 1975, the State legislature allocated $310,000 for cleanup and in 1976 placed the drums into shallow trenches on the site and covered them with a thin layer of soil. The State has been monitoring the groundwater even though the aquifer is not usable as a domestic livestock or agricultural water supply. The water naturally has a high PH and a high arsenic concentration. EPA/State monitoring data indicate that phenols and other related chemicals have migrated off-site. The area is sparsely populated and there is no significant threat to public health or the environment. Semi-annual monitoring will be conducted by the State. EPA will conduct periodic monitoring.

pesticides
non-potable
groundwater

PENNSYLVANIA

Chester, Pennsylvania

toxic wastes, fire
human health

A rubber recycler received drums of hazardous wastes from ABM Company, a hauler, and dumped the wastes on the ground. Drums and contaminated soil and debris exist on site. The site is in a residential area and there is a threat of fire and explosion with resultant toxic fumes. The latest fire produced an acid mist. An enforcement case was filed in April, 1979.

Cleanup of intact drums started in January, 1980. A State hydrogeological study shall be conducted. Newspaper articles describe the following potential generators: Texaco, Scott Paper, Sun Co., Exxon, DuPont, Boeing-Vertol, and Smith, Klein and French. Cost to cleanup the site may exceed $3 million.

King of Prussia, Pennsylvania

toxic wastes
surface & groundwater,
drinking water

Illegal disposal of hazardous wastes in a well by ABM Company has contaminated groundwater. The contaminated groundwater feeds a reservoir which is the drinking water supply for suburban Philadelphia. A hydrogeological evaluation and well sampling program is being planned in order to document leachate migration.

Springdale, Pennsylvania, 1978

A mixture of 10 or 11 chemicals, including the toxic compound bromocyclohexanol, entered the sewer system of Springdale, PA, a suburb of Pittsburgh, through a connection with a PPG Industries plant located about 20 miles away. A serious health hazard apparently was not present. However, 752 persons in Allegheny County complained of bad smells and taste in drinking water, and 65 persons complained of slight illness.

toxic chemicals
sewer system

Southeastern Pennsylvania

Surface and ground water were contaminated. The suspected source was an abandoned landfill, which is on property now owned by a chemical company. An investigation was made to determine the extent of ground-water contamination and the feasibility of ground water clean-up. The study showed that poor housekeeping by the chemical company and improper waste disposal were major contributors to surface- and ground-water contamination. The degradation caused by the landfill was less severe. The case was reported to be still in litigation.

surface water
groundwater
chemical wastes

Bucks and Montgomery Counties, Pennsylvania

The following cases all involve Trichloroethylene (TCE) contamination of water supplies in Bucks and Montgomery counties northwest of Philadelphia, Pennsylvania. In most cases, the State has the lead with EPA providing technical assistance as needed.

TCE, organics
drinking water wells

Tech Alloy, Rahns, Pennsylvania

A private well has been contaminated with TCE and other organics. Company is supplying alternative water supplies.

N. Penn Water Co., Montgomery County, Pennsylvania

Eight out of 42 wells have been taken out of service because of TCE contamination. N. Penn Water Co., is conducting investigations with area industries.

Superior Tube, Collegeville, Pennsylvania

TCE has been found in municipal water supply. Superior Tube taking voluntary action to pump aquifer in order to eliminate TCE contamination.

Variety Club Camp, Worchester, Pennsylvania

TCE has been detected in camp water supply. Nearby private wells are also contaminated. The camp has connected to a safe water supply. Currently the State is investigating the private well contamination.

The following active sites involve TCE and other chemical contamination in water supplies. Site investigations are underway by EPA and State agencies.

- Upper Southampton
- NADC, Wormimster
- Wormimster
- Wormimster Heights, some cleanup underway
- Hatboro, some cleanup underway
- Warrenton, remedial actions underway
- Chalfort
- Evansberg
- Fairview Village
- Bristol
- Valley Forge Tabs, remedial action underway
- Audobon, remedial action underway

Philadelphia, Pennsylvania, 1978

chemical wastes
surface water

In mid-1978 a Philadelphia area man pleaded guilty to violating Federal pollution laws for the dumping of more than 730,000 gallons of chemical wastes which were poured into a storm sewer and into the Delaware River near Philadelphia's Torresdale water treatment plant, which provides approximately one-half of the city's drinking water.

Studies by the U.S. EPA of Philadelphia drinking water found traces of eight cancer-causing chemicals in water distributed from the Torresdale plant. Officials contended that the chemicals were being discharged by the waste treatment plant and were moving seven miles upstream to the intake pipe of the drinking water treatment plant.

Newberry Township, Pennsylvania

Private wells have been contaminated with carbontetrachloride, TCE, tetrachloroethylene, toluene, and dichlorobenzene. The company involved has agreed to take remedial action.

organics
drinking water wells

Sandy Lake Borough, Pennsylvania

A private hauler, contracted by the Pittsburg Plate Glass Co. for removal of glass manufacturing waste, dumped the alkaline wastes into a swampy lowland adjacent to McCutcheon Run. In 1975, after two years of accepting the wastes at the landfill, the owner stopped accepting the wastes and drained the swamp. This caused a five mile fish kill in McCutcheon Run.

alkaline wastes
surface water, fish kills

New Beaver, Pennsylvania

Environmental Aids operated a waste treatment and disposal facility for pickle liquors and organic wastes at a New Beaver, Pennsylvania site. Wastes were stored in a pit behind a shale dam. After a nearby pond and residential wells were contaminated, the State ordered the company to clean up the site. When the company failed to comply with the consent decree requirements, the

pickle liquors, organics
surface water, drinking water wells

State seized the firm's assets and cleaned up the site at a cost of $300,000. The groundwater has not been restored.

Bruin, Pennsylvania

The American International Refining Corp. operated at a Bruin, Pennsylvania site until 1972. In 1968, the breakage of a waste storage lagoon containing oils, acid wastes, and alkyl benzene sulfonate into the Allegany River killed 4.5 million fish valued at $108,000. The firm could afford to pay only $20,000 in fines to cover the damage. The site was abandoned in 1972 when the company went out of business. The State of Pennsylvania has spent over $20,000 for cleanup since 1973. The new owners of the site have posted a $100,000 bond for continued cleanup.

organics
surface water

Findley, Pennsylvania

Leachate from the Browning Ferris Industries industrial waste landfill has seeped into the groundwater and have caused minor fish kills in a nearby stream. After 1975, the site was no longer authorized to accept industrial wastes.

toxic wastes
surface & groundwa

Noxamixon, Pennsylvania

toxic wastes
surface water

Three of eleven industrial waste lagoons operated by a chemical company leaked into a nearby stream. After the State ordered the Company to clean up the site in 1970, Revere abandoned the site and left lagoons containing 3 1/2 million gallons of waste. During heavy rains wastes would wash into the Delaware River. The state finally intervened and spent over $400,000 to clean up the site.

Falls, Pennsylvania

phenol, zinc
groundwater

Since 1957, a major steel corporation maintained 13 lagoons for the disposal of industrial waste. A comprehensive groundwater study in 1975 showed significant concentrations of iron, phenols, zinc, and other chemicals had entered the groundwater.

Theodore Inman Landfill, Daugherly, Pennsylvania

toxic wastes
air, surface water

Industrial wastes, including oils and heavy metals dumped at the Theodore Inman landfill in Daugherly, Pennsylvania in the early 1970's destroyed biota in nearby streams and emitted noxious odors. The site's operating permit was withheld until the site was in compliance with a state order for remedial action.

In June 1974, landfill operators informed its clients that liquid wastes would no longer be accepted.

Lackcawanna Refuse Co., Scranton Pennsylvania

An illegal disposal site for hazardous waste haulers has accepted thousands of drums. Leachate from site may be contaminating groundwaters. The indigent owner is in jail because he had defrauded the County earlier.

toxic wastes
groundwater

State College, Pennsylvania, 1976

In August, 1976 samples of fish taken from the headwaters of spring Creek in the vacinity of the Nease Chemical Plant were found to contain Kepone in concentrations that exceeded Food and Drug Administration (FDA) action levels.

kepone, mirex
surface waters

Nease Chemical Co. produced Kepone for Allied Chemical in the late 50's and early 60's and produced Mirex for Hooker Chemical in 1973. Improper waste disposal practices over the years had caused Kepone and Mirex contamination of the plant property and Spring Creek, a trout stream.

Following EPA recommendations, the State has advised fishermen to limit their fish intake. The State of Pennsylvania and

EPA are working to insure Nease is committed to a sound cleanup program.

Haverford, Pennsylvania

National Wood Preservatives, which operated a plant at Haverford from 1952 until 1963, dumped waste creosote containing dissolved pentachloraphenol into a disposal well. In 1963 the plant changed ownership, and the new management reportedly stopped use of the disposal well, which had contaminated the upper portion of the groundwater aquifer.

pentachloraphenol
surface water

This has slowly spread downgradient, intercepting a storm sewer. The organic wastes have begun to enter Naylor Run from the sewer, killing all aquatic life for at least five or six miles downstream from the point of entry. In July 1973, the Pennsylvania Dept. of Environmental Resources ordered those presently owning the affected property to remove the wastes, requiring wells to be dug to pump out most of the creosote and a catch basin to be placed on the storm sewer. Estimated cost of this cleanup is $50,000. The current owners, claiming they did not cause the problem, are appealing the order. In 1977, the EPA Environmental Emergency Response Unit plugged a drain, preventing further surface water pollution. The groundwater remains contaminated.

Neville Island (Allegheny County), Pennsylvania

The Ohio River Park occupies a thirty-five acre lot at the western tip of Neville Island. Essentially completed, the park is located on a site donated to Allegheny County in 1976 by the Hillman Co. via its foundation. The company is the parent corporation for the now defunct Pittsburg Coke and Chemical Co. Four acres of the site were reportedly used as a municipal garbage dump from 1953 to 1945. In the early 1950's large quantities of miscellaneous industrial waste were deposited extensively. The chemicals uncovered at the park site includes benzene, phenols, parathion, cyanide, mercury and coal tar residues.

A recently completed study of remedial alternatives estimated that continued park closure with monitoring would cost $150,000 to $250,000. Removal of contaminated waste in order to rebuild the park as originally conceived would cost seven to twenty-four million dollars.

organics, pesticid
heavy metals
land, human health

Tioga County, Elkland Borough, Pennsylvania

In November 1972, the Elkland Tannery shut down after 33 years of operation. The site was turned over to Elkland Borough, which chose to have the site leveled. During levelling operations, about 20,000 gallons of chemical waste liquids were released and drained into the Cowanesque River on December 7, 1978. The spill killed everything in the river for 7 miles. An estimated 2-4 million gallons of wastes remain stored at the site.

toxic wastes
surface water

Hazelton, Pennsylvania

Trichloroethylene from New Jersey was brought to Hazelton by midnight dumpers and dumped into a quarry. TCE is believed to have leaked down to the aquifer, contaminating a potential water supply for Hazelton. Hazelton is in need of a new water supply because of the questionability of its present reservoir for future use.

TCE
groundwater

Washington County, Pennsylvania

The Arden landfill, in operation since the 1940's, accepts air pollution control sludges from Hercules, Inc. The sludges contain heavy metals including lead, cobalt, and chromium. Leachate from the

heavy metals
groundwater, drinking
water wells

landfill entered groundwater and contaminated a farmer's well and a spring one-half mile from the site. The landfill operator constructed a leachate collection system. Leachate is piped to the City of Washington's municipal treatment plant. Sludges from the municipal treatment plant are then buried at the Arden landfill.

Whiteland Township, Pennsylvania

lithium
drinking water wells

Unlined lagoons used by the Foote-Mineral Exton Corp for disposal of lithium caused groundwater contamination and the abandonment of 600 wells. The lagoons have since been lined.

Pittston, Pennsylvania

oils, organics
surface & groundwate

In mid 1979, from 500 to 1000 gallons per day of a mixture of waste oil and organic chemicals poured for more than one month from an abandoned mine shaft into the Susquehanna River. The Susquehanna River is used for recreational purposes and for downstream drinking water supplies. EPA expenditures at the site to date total approximately one-half million dollars. An additional $850,000 has been requested for site assessment and emergency containment. It is estimated that $10 million will be needed to fully remedy the problem.

Philadelphia, Pennsylvania

In 1979, about 400 gallons of PCB contaminated liquids flowed down the streets in the Kensington area after a vandel opened the valve of a transformer left in an abandoned Independent Wiring Plant warehouse. Two tons of sand were poured on the streets in an effort to soak up the substance. Local residents experienced eye irritation and a young girl who came in direct contact with the chemical was hospitalized briefly.

PCB's
air

Pleasant Township

Heavy rains broke the earthen dike of a former refinery waste lagoon releasing contaminated sludge that entered the Allegheny River. 450,000 fish, with an estimated value of $75,000 were killed along a 60-mile stretch of the river. Groundwater quality remains degraded.

toxic wastes
surface & groundwater

Butler, Pennsylvania

Pickling liquors mixed with lime escaped from improperly lined lagoons.

pickling liquors
surface water

An estimated 400,000 gallons per day of liquid wastes with a pH of 2.6, has contaminated a nearby tributary of Raccoon Creek. The creek is already badly damaged by mine acid discharges.

Buffalo Township, Butler County, Pennsylvania

Prior to 1962, the Hranica Landfill accepted industrial wastes, including test paints, solvents, thinners, and pigments. Leaching by these materials resulted in the contamination of a spring about 1/4 mile away, a source of drinking water for local residents. Residents reported that a film of organic chemicals on the surface of the water could occasionally be lit by a match. The spring water was still unfit for drinking as of 1975.

organics
spring

Lehigh County, Pennsylvania

Industrial wastes disposed in the Heleva Landfill since 1967 contaminated a well which supplied water to about 50 homes. Excessive levels of phenols, ethyl acetate and trichloroethylene were present in the well water.

phenols, organics
drinking water wells

Tinicum Marsh, Pennsylvania	
Fly ash was illegally dumped adjacent to Tinicum Marsh, causing contamination of the wetland. Because the tidal wetland was considered environmentally sensitive, the marsh was cleaned up.	fly ash wetland
Berks County, Pennsylvania	
Seven private wells were contaminated by leakage from 55-gallon drums containing paint solvents from the Volberts Company of Allentown, Pa. The drums had been dumped in a quarry in Kutztown, Pa. They were removed when contamination was detected in 1972.	paint solvents drinking water wells
Hamilton, Allegheny Co., Pennsylvania	
An unidentified pesticide manufacturer produced lindane/BHC on a site in Hamilton. Operations ceased in 1966, and the site was later deeded to the town. Over 400 tons of highly toxic BHC waste were discovered at the site, and there was a confirmed leak from the waste into a local stream.	pesticides surface water

Berwick Borough, Columbia County, Pennsylvania

In 1965, unlined lagoons of the Fulton Lamp MFG. Co., caused contamination of private wells in the area. The lagoons were leaking plating wastes containing cyanide, copper, nickel, alkylbenzene-sulphonate, and phosphate.

plating wastes
drinking water well

RHODE ISLAND

North Smithfield, Rhode Island, 1979

Western Sand and Gravel operated a sand and gravel pit that accepted chemical wastes and septage in trenches and in at least ten unlined lagoons. The soil status is a fine grain sand type. The site is upstream of the Saltersville Reservoir and two of Saltersville's municipal wells. Groundwater contamination of 1,1,1 trichloroethane and toluene has been documented. At the Governor's request the EPA is providing assistance under Section 311 CWA. On February 15, 1980, analyses showed that trichloroethylene, benzene, toluent, ethyl benzene and xylene were leaching into Tarklin Brook and Statesville Reservoir. Four lagoons have been emptied and wastes will be disposed of safely by early May. The State is accepting bids for the disposal of the remaining septage lagoons and will open bids on May 7, 1980.

organics
surface & groundwater

Coventry, Rhode Island

The Candy Box Farm is a pig farm which has also been used as a repository for hazardous chemical wastes. Frequently, the illegal wastes originated out-of-state. Midnight dumping of flammable chemicals occured in ditch areas. Approximately 20,000 55-gallon drums of chemicals are stored on the farm. Fourteen barrels containing explosive sodium aluminum hydroxide were removed following a substantial explosion and fire in late 1977. The site slopes to a tributary of the Moosup River. Surface water contamination has been confirmed.

organics, flammable
surface water

Litigation by the State of Rhode Island began in 1979 against the owner, generator and several haulers. According to recent reports, the site has been abandoned with the State spending $60,000 to study cleanup and restoration alternatives. The State legislature appropriated $300,000 to cleanup the site; however, cleanup costs are estimated at $38 million for complete remedy.

Bristol, Rhode Island

The Bristol landfill has three illegal dump sites of chemical wastes. Toluene and trichloroethylene have been found. As of November 1979, 663 barrels had been removed at a cost of $162,000. The adjacent marshland and at least eleven wells have become contaminated. The site is recognized to be a serious problem.

toluene, TCE
surface water,
water wells

Cumberland, Rhode Island

The 10 acre Cumberland Landfill, operated by J.M. Mills, Inc. has been implicated in the closing of four municipal wells; three of which still closed. The wells are contaminated by tetrachloroethylene and 1,1,1,trichloroethane with concentrations up to 61 ug/l and 166 ug/l, respectively. According to the USGS, the three wells may have drawn groundwater from the Cumberland landfill when all three wells were pumping.

tetrachloroethylene,
1,1,1, trichloroethane
drinking water wells

Before a remedial action plan can be devised additional monitoring of the area is required to document the source of the pollutants. This monitoring is being pursued by EPA Region I.

North Smithfield, Rhode Island

Landfill and Resource Recovery operated an unlined industrial hazardous waste site until the state prohibited the acceptance of hazardous waste in September 1979. The site, however, is still used as a municipal refuse landfill. Over 1,000 gallons per day of hazardous waste were accepted. These wastes included toluene, benzene, carbon tetrachloride, dioxane, chloroform, trichloroethane and methylene chloride. Monitoring wells have shown some contamination of organics, however, additional monitoring well test data is being collected by the State to document the extent of groundwater contamination. Contamination leaving this site could affect the downgradient aquifer.

organics

groundwater

Coincidentally, the site is only one quarter mile from the Western Sand and Gravel Site.

Providence, Rhode Island

Local government officials have investigated a private hauler who dumped 55-gallon drums on these vacant lots. The hauler is believed to have dumped chemical wastes at other locations throughout the area.

chemical wastes
land

Kingston, Rhode Island

An inactive Kingston landfill received contaminated wastes from the now defunct Photeic Corporation. Groundwater has become contaiminated with high concentrations of mercury. There is no immediate health hazard.

mercury
groundwater

SOUTH CAROLIINA

Ferguson Site, Rock Hill, South Carolina, 1980

Twenty-five hundred deteriorating drums and a large storage tank, containing various hazardous materials, including PCB's, pose a significant threat to a tributary of Wildcat Creek from surface runoff. The State has filed a suit to remedy the situation. $140,000 in CWA section 311 funds have been expended at the site.

PCB's
hazardous material
surface water

Sangamo Electric Co., Pickens, South Carolina

Sangamo Electric Co., disposed of PCB-contaminated equipment and wastes at three sites. Two of the locations are county owned lanfills and the third is a privately owned landfill. Water testing showed high concentrations of PCBs in the groundwater and nearby waterways, including Lake Hartwell. A standing advisory was made against the commercial taking of bottom-feeding fish. The Sangamo Plant now has a permit for on-site burial of PCB contaminated wastes.

PCB-
surface & groundwater
water

Landrum, South Carolina

An unidentified industrial-type waste was dumped into Vaughan Creek, the town's water supply. National guardsmen trucked drinking water into the town, while town employees flushed two storage tanks. It is believed that the contamination was discovered at the filtration plant before being released to the disribution system.

industrial wastes
town water supply

SOUTH DAKOTA

Oahe Reservoir, South Dakota

Processing of gold ore by use of a mercury amalgamation process resulted in contamination of the Whitewood Creek, Cheyenne River, and Cheyenne arm of Oahe Reservoir with mercury compounds. As a result of this, mercury levels in some fish in the Cheyenne River have exceeded the FDA recommended level. The State recommened the consumption of fish be limited. No correction of the problem has been taken and no firm estimates of costs have been prepared. The costs, however, would be substantial, since over 100 miles of stream are affected.

mercury
surface water
fish ban

TENNESSEE

Hardeman County, Tennessee

Velsicol Chemical Corporation of Memphis, Tennessee, is the owner of approximately 242 acres in Hardeman County near the Town of Toone, Tennessee. Between 1964 and 1972, the Company trucked about 300,000 55-gallon drums of their waste material from a pesticide plant in Memphis to the site for disposal. The company's waste residue including endrin, dieldrin, aldrin, and other pesticides, were buried in unlined trenches over about 50 acres of the property. The groundwater has become contaminated and use of private wells in the area has been discontinued. A public water supply has been extended to these residents, and groundwater monitoring is continuing. Remedial actions at the site are being taken by the Company. Clean-up cost estimates range from $6 million to over $165 million. A class action suit has been filed against the Company by local citizens. A 1979 study indicated liver enzyme abnormalities among residents who had consumed the water.

pesticides
drinking water wells

Millington Dump/Landfill, Memphis, Tennessee	
The Millington Landfill is located adjacent to Big Creek near Millington, Tennessee. Alleged to have accepted unknown types and quantities of industrial wastes, the site ceased operation in 1976. EPA sampling of sediment in seepage areas during May 1979 revealed two organic compounds in low concentrations; chlordane (0.4 ppm) and chlordane (.019 ppm). The site is presently cultivated with soybeans.	chemical wastes soil
Chickasaw (Old) Ordnance Site, Millington, Tennessee	
Located at the site of a now abandoned Dupont Ordnance plant. Company reports only small amounts of spilled acid (sulfuric and nitric) would have gone into the site from their TNT manufacturing process. Wastewater contaminated with residual TNT was disposed through a drain field during the time the plant was in operation and TNT might have accumulated in the soil. Sampling has not been done by EPA at this site.	chemical wastes soil

Chattanooga, Tennessee

In June 1978, National Waste Oil Control Company declared bankruptcy and abandoned two storage areas containing 30,000 gallons of oil and sludge. The site posed the danger of spillage into nearby Citico Creek and potential contamination of the city drinking water supply. The U.S. EPA spent $100,000 to land fill the sludge and incinerate contaminated soil. After the city filed a nuisance suit, the owner removed the remaining sludge, graded and capped the site.

waste oils
drinking water supply

Memphis, Tennessee 1976 - 1980

Complaints from residents of a neighborhood have initiated several investigations of reported chemical waste disposal. Recent sampling of air, water and soil has been conducted by EPA. Analyses have not shown chemical levels above those normally found in urban areas. Additional sampling will be done.

pesticides
human health
complained

Rutherford County, Tennessee

Twenty private wells in a rural setting were found contaminated by the illegal disposal of waste oils into a sinkhole. HUD

waste oils
drinking water
wells

and FHA funded a $200,000 extension to an ongoing water supply project in order that impacted residents be supplied potable water. Nothing was done to restore the groundwater.

Waynesboro, Tennessee

In the late 1960's and early 1970's, a local plant began to dump polychlorinated biphenyls (PCB's) and other chemical wastes into a city dump site. The dumping continued until April 1972. The waste has migrated into a spring which feeds Beech Creek. Aquatic life in Beech Creek has been adversely affected.

PCB's
surface water,
wildlife

Milan, Tennessee

Normal operation of the Milan Army Ammunition Plant, since its origin in 1941 has resulted in surface discharge of plant process water containing residues of TNT, DNT, RDX and "tetryl". During a routine testing of wells on the installation, explosive residues were found in the vicinity of the industrial lagoons. Two water supply wells for the Army installation were closed subject to these findings. A survey of on-site and private wells downgradient from the installation was instituted by the U.S.

TNT, DNT, RDX,
tetryl
ground water

Army Toxic and Hazardous Materials Agency to determine the extent of contamination. Following this survey, a pollution abatement plan will be implemented.

Chattanooga, Tennessee, Velsicol Residue Hill

On-site disposal of chemical wastes has resulted in groundwater contamination. The company is planning remedial work on-site for completion this construction season.

chemical waste
ground water

Memphis, Tennessee

Complaints of severe headaches, nausea, and eye irritation in sewage treatment plant workers led to analyses of urine samples. Chlorinated organics and related compounds of low levels were found. The apparent source of the chemicals was the industrial waste discharges to sewer lines. Several industries have agreed to pay for most of the cost of cleaning contaminated sludges from the sewers.

chlorinated organics
wastewater collection and treatment system

Morristown, Tennessee

Leachate from a dump containing municipal refuse, DDT, DDE, DDD and dieldrin polluted nearby wells. Odors emanated from a leachate polluted stream. TVA produced a final closing

pesticides
surface water

plan for the dump, including a two foot final cover and plastic covering of the pesticide disposal area.

Bellvue Dump, Memphis, Tennessee

This site is an old city dump which ceased operation in 1974. It is situated along the Wolf River near N. Watkins Street. Illicit dumping at the site is still occurring. The Bellvue Dump is one of several dumps in the immediate vicinity; all are located in the Wolf River flood plain, none are presently permitted for active dumping. These various other dump-sites were privately owned/operated, now having ceased opertion. EPA is presently awaiting analytical results from leachate and sediment samples taken during March 1980 from the Bellvue site.

chemical wastes

Hollywood Dump, Memphis, Tennessee

Located south of the Wolf River at the Hollywood Street bridge, the site was an old city dump in the flood plain and filling of the Wolf River. In operation from 1930 - 1974, the site was used for disposal of unknown quantities of household and industrial wastes, notably including pesticide production wastes from the Velsicol Chemical Company. Site was the focus of 311 response during February - March 1980 when exposed barrels were removed from the flood plain of the Wolf River and eroding areas were filled and seeded.

chemical waste
surface water

Jackson Pit Dump, Memphis, Tennessee

Situated near the intersection of Tchulahoma Road and Jackson Pit Road, Jackson Pit is a closed municipal landfill owned by Shelby County. The site received much of the industrial solid waste from the Shelby County area when it was in active use. Adjacent stream shows three priority pollutants and twelve other organic compounds in the water phase which are also present in leachate leaving the site. The site is being monitored for any increase in the concentrations of contaminants in the leachate streams or for increased volumes of leachate.

chemical waste
surface water

TEXAS

Harris County, Texas

Acid pit is an abandoned waste disposal site in the San Jacinto flood plain near Highland, Texas. Dry compacted sludge covers one acre to a depth of 10 feet. The site is located in a flood plain and is not secured. In 1961, a hurricane flood tide resulted in a massive fish kill. The site is being assessed to determine the need and urgency of cleanup.

toxic wastes
surface water,
fish kills

LaMarque, Texas

MOTCO is, and unsecured, abandoned dump site situated in a flood plain. One generator to this site is a major chemical company. There are 88 drums possibly containing toluene, triethanolamine, acetic anhydride, lead and mercury. Pits on the site contain oily sludges. Analysis of these wastes reveal significant concentrations of PCB, benzene, phenol, stryene, trichloroethylene, chloroform, toluene, ethylbenzene, and xylene. The site is causing air and surface water pollution problems. Attempts at recycling the wastes were halted due to vinyl chloride emissions. Costs for containment are estimated to be at least $100,000, with cleanup expected to costs $1.5 - 4 million.

Organics, PCB's
air & surface water

Mission, Texas

pesticides
health threat

High concentrations of pesticides and other chemicals were found on the areas surrounding an abandoned pesticide formulation plant. One of the areas is used to park school buses and a wood working shop for the Mission Schools. Samples of dust taken from the seats of the school buses also showed pesticides. The cost of cleanup is estimated to be approximately $200,000.

Grand Prairie, Dallas County, Texas

industrial wastes
fire

This nearly 12 acre inactive site is fenced, but otherwise unsecured. It is located within the city limits of Grand Prairie, a suburb of Dallas. The disposal of a variety of industrial wastes began there in 1972 and continued until the site was closed in 1978. In early 1978, there was a fire at the site which destroyed the incinerator.

Harris County, Texas French Limited is a 15 acre waste disposal site, in use since 1965. Approximately, 70 million gallons of acidic and oily wastes were disposed into this unlined, abandoned sand pit. The oily sludges and sediment of the pits contain PCB's. In 1973, flooding of the San Jacinto River inundated the site and caused the dike to break. Some of the oily sludges were released. The site was again inundated in 1979. Drinking water wells are contaminated and a nearby san pit was closed due to the movement of toxic pollutants. The State has neutralized the pH of the sludges as the first step of remedial action. Substantial cleanup is required which may exceed $1,500,000.	acidic, oily wastes, PCB's surface water
Harris County, Texas Sikes Pit is a site for a large volume of petroleum and chemical wastes. The site is located in the San Jacinto flood plain. Sikes Pit is unassessed at this time.	petroleum, chemical waste surface water

Riverside, Texas

In 1979 high levels of chromate were found in the drinking water of contaminated wells. State officials believe that a leak in a cooling tower basin at Structural Metals, Inc. was the source of the pollution. The state may require the company to pump and restore the aquifer.

chromate
drinking water wells

Austin, Texas

Powdered pesticides, including DDT, toxaphene, lindane and Alpha and Beta Benzene Hexachloride, killed several hundred fish in a Southeast Austin pond. The pesticides had been dumped in paper bags into the St. Edwards landfill. Bulldozers constructing a baseball field unearthed the chemicals, and rain washed them into the pond. In August, 1979 construction in the park ceased while officials removed the contaminated soil.

pesticides
surface water, park

UTAH

Rose Park, Salt Lake City, Utah, 1979

Wastes including old discarded waste oil, somewhat paraffinic, from a waste processing operation were disposed at the now inactive site. The park is fenced in for safety purposes. In warm weather the oil oozes up and has been described as a three million cubic foot tar pit. An EPA consultants report indicates potential for offsite groundwater contamination. A contractors review recommended that the site be covered with an impervious clay and properly sloped for drainage.

waste oil
groundwater

VERMONT

Rockingham, Vermont

Gross pollution of groundwater in Rockingham, Vermont was observed seven years after a liquid industrial waste disposal facility was established in an abandoned gravel quarry. Groundwater were characterized by elevated levels of specific conductance, BOD, COD, chromium, lead, zinc, potassium and nickel. While not admitting culpability, the operator agreed to furnish potable water to affected neighbors by means of a public water system. The disposal of liquid wastes has been prohibited but the groundwater resources remain polluted.

chemical wastes
groundwater

VIRGINIA

Saltville, Virginia

mercury
surface water

Mercury has leached from an old Olin plant site and contaminated the Holston River. A fishing ban was imposed by the State for the Holston River. The Company is completing a field investigation and developing remedial action strategy. A technical task force made up of the State Water Control Board, State Attorney General's Office, and EPA Region III is overseeing industrial remedial studies, plans and alternatives. Remedial actions are to be initiated by Fall, 1980. To date, the Company has spent $700-800 thousand, $200 thousand to put rip rap on the stream bank at the old plant site, and an estimated $200 thousand to stabilize levees of on-site ponds. The remedial plan includes covering the pond containing mercury and diverting surface water around the pond basin. This will cost approximately $4 million whereas the alternative would be to remove the mercury and dispose of it in a controlled disposal area. This would cost approximately $32 million.

Waynesboro, Virginia, 1977

In June 1977 the South River below Waynesboro, Virginia, and the South Fork of the Shenandoah River were closed to fishing for eating purposes, for a total 130 miles. Officials contended that an E.I. duPont de Nemours facility at Waynesboro was the source of the contamination. Mercury had been used as a catalyst in the manufacture of synthetic fibers at the plant between 1929 and 1950. Concentration levels of more than 240 ppm were found in the sediments of certain of those waters, and fish contamination exceeded the FDA action level of 0.5 ppm. Closures in the Shenandoah area were estimated to have reduced fishing on the river by 78 percent, a decline that translated into a $600,000 yearly loss to the economy of the region.

mercury
surface water
fish

Hopewell, Virginia

Kepone, a highly chlorinated hydrocarbon pesticide, was discharged into the environment around Hopewell, Virginia from 1966 to 1975 from two manufacturing operations. The Allied Chemical Corporation Semi-Works Plant produced Kepone intermittently from 1966 to 1974. Life Science Products Company initiated Kepone production under contract to Allied Chemical in 1974 and continued production until closure of the plant in September 1975. The finding of high levels of Kepone contamination in James River fish brought about closure of the James River to recreational and commerical fishing for many species of fish and shellfish. An estimated 20,000 to 38,000 pounds of Kepone still is in the James River. The projected cost for effectively eliminating contamination is in the billions of dollars. In addition plant workers have contracted numerous illnesses which may be attributed to Kepone exposure. Litigation is still pending and the problem has not been resolved.

Kepone
surface waters
human health
fishing ban

Nelson County, Virginia, 1977

Acid from copper wastes of an American Cyanamid plant which operated from the 1940's to 1969, washed into the Piney and Tye Rivers afer a thunderstorm killing 73,000 fish. As of July 1979, the copper wastes remained, despite the efforts of the new owner, U.S. Titanium, to have it moved.

copper wastes
surface water

WASHINGTON

Tacoma, Washington, 1980

organics
groundwater

Hooker Chemical Company has recently reported to the State of Washington and EPA Region X that the groundwater at the plant site is contaminated by chlorinated organic chemicals. The contamination may be due to waste chemical migration from disposal areas and lagoons on the plant site. Additional groundwater monitoring is necessary to define the extent of contamination.

Helgar - Kronquist Kaiser Site, Spokane, Washington, 1980

chlorides
groundwater

This site is an old gravel quarry which is privately owned. The quarry was used to dispose aluminum processing wastes until closed by a county order. The shallow perched water table has been contaminated by chlorides. The county has issued an order directing remedial actions at the site. Kaiser has agreed to do additional groundwater monitoring and to evaluate alternative remedial measures.

Wilders Landfill, Ferndale, Washington, 1979

chemical wastes

soil

This privately owned site was permitted as a landfill by the county in 1976. In violation of permit requirements, hazardous wastes were disposed in a pit on the site and the county ordered the site closed and covered in 1979. The site is located in clay soils and no groundwater contamination has been detected. However, monitoring at the site is being conducted to determine if additional surface water controls and grading work is necessary.

Kent, Washington, 1980

At a chemical waste recycling and reprocessing facility, improper methods of waste handling and disposal have contaminated surface runoff and probably contaminated groundwater. Remedial actions at the site should include clean-up of contaminated soils and groundwater monitoring. Additional investigation is necessary prior to a definitive remedial plan.

Toxics
surface and groundwater

Spokane, Washington, 1978

In 1978, private residential drinking wells near the Kaiser Aluminum and Chemical Plant were found to have significant concentrations of cyanide. The apparent cause of the contamination is Kaiser's practice of pumping liquid wastes containing cyanide into on-site lagoons or directly into the ground. The cyanide apparently migrated easily through the sandy flatland which overlies the Spokane aquifer.

cyanide
drinking water

Shelton, Washington, 1972

In 1972 water in the Mason County fair grounds well were found to be contaminated with breakdown products of waste liquor, tannins and lignins apparently from Goose Lake, which is 3/4 mile away. During the late 1930's and early 1940's Rayomier Timber Co. had disposed of its waste liquors and sludge from its pulping operations in and near Goose Lake in Shelton.

organics
surface and groundwater

Everett, Washington, 1974

A combination of aluminum dust, magnesium chips and concentrated phosphorus ignited while being compacted at a landfill. Firemen applied water, which worsened the situation; two firemen were subsequently thrown from a front end loader, but escaped injury. Firefighters extinguished the surface fire but the fire burned underground until it expended its fuel.

combustibles
human health

Black Diamond (King County), Washington

For at least 10 years the Palmer Coke and Coaling company has accepted industrial wastes, including paints, solvents and paint sludges, for dumping in abandoned coal mine shafts. Wastes, seeping through cracks polluted surface waters. Although wastes are still accepted, the site is regularly monitored by the Department of Ecology.

organics
surface water

Silverdale (Kitsap County)

Water that had been used to wash RDX (a high explosive) out of shells leached from a dump and contaminated groundwater. The U.S. Navy Spent $150,000 on a monitoring program; final costs might reach $1 million.

waste water
groundwater

Kent, Washington, 1979

Widing Transportation, Inc. violated water pollution laws when its settling ponds, used to filter liquid wastes out of its tanker trucks, overflowed into an adjacent swamp. Surface water was contaminated -- groundwater had apparently not been affected.

liquid wastes
surface water

WISCONSIN

Calumet County, Wisconsin

In February 1979, demolition wastes containing PCB's, mercury, cadium, lead, copper and chromium were dumped by Weiseter Construction into wetlands adjacent to Lake Innbago. If they are not removed the wastes will ultimately enter the lake. The Corps of Engineers has sued in federal court. The State also has a court order pending.

PCB's,
heavy metals
wetlands

Sheboygan Falls, Wisconsin

Extremely high levels of PCB's in fish have resulted in an advisory against consuming fish from 129 miles of the Sheboygan, Mullet,, and Onion Rivers. One suspected source of the chemical is the Tecumseh Products Company, which used wastes containing 10,000 parts per million PCB's as fill in the Sheboygan River floodplain. Remedial measures have been initiated by the Wisconsin Department of Natural Resources.

PCB's
fish ban

Brokaw, Wisconsin

Surface and ground water were contaminated. A paper company stored spent sulfite liquor in a pond for about 4 years. It was hoped that the quality of the polluted water would be improved as it moved through the soil. However, an investigation revealed both surface and ground water contamination. Initially, a high-capacity well was used to withdraw contaminated ground water from the aquifer, and a barrier well was used to contain the spread of contaminants. Ground water was discharged to the Wisconsin River. Two more pumping wells were installed later. The remedial action has contained the zone of contamination but is not as effective as anticipated. Pumping will be necessary for a long time to fully renovate the aquifer.

sulfite liquor
ground water
surface water

Onalaska, Wisconsin

At least 3 private wells were contaminated. Investigations undertaken by the state of Wisconsin between 1966 and 1968 found at least 3 private wells to be polluted by waste leaching from several near-by impoundments. The 200,000 gallons of waste produced daily contain high concentrations of chlorides, fluorides, sulfates, and trace amounts of metallic ions. Treatment of the wastes was provided prior to infiltration. A new well was drilled to replace affected wells.

chemical wastes
groundwater

Ripon, Wisconsin

Contamination of a canning company well led to an investigation. The contamination was traced to improper handling of the canning company's own wastes. The contaminated well was initially pumped to remove the contaminants, with little success. The well was abandoned and sealed. Increased use of a high capacity well also resulted in contamination of the well. It was pumped and treated with limited effectiveness. It was finally deepened, and used with another deep well to supply water for the cannery. No further problems have developed.

organic waste
ground water

Marinette, Wisconsin

Storage of arsenic salts and discharges to the Menominee River have left ground water and the river sediments contaminated with arsenic. The generator, Ansul Company, paid $7 million to have the wastes removed, but the soils, ground water and sediments remain contaminated. Ansul has proposed a treatment system for cleaning ground waters.

arsenic
ground water

Madison, Wisconsin

Surface water and ground water were contaminated. Contamination does not extend far beyond the edge of the landfill. A study of the landfill was initiated in 1967 to define the nature and extent of ground water contamination from the Olin Avenue landfill. The landfill site is a former marsh. The presence of the landfill has partially converted a ground-water discharge zone to a recharge zone. Most ground-water movement is toward Wingra Creek. No remedial action was reported.

leachate
surface &
ground
water

Madison, Wisconsin

Surface water and ground water were contaminated. Contamination does not extend beyond the edge of the landfill. A study of the landfill was initiated in 1967 to define the nature and extent of ground water contamination from Truax Field landfill. The presence of near by high-level wells has modified the ground water flow pattern in this area. No remedial action was reported.

leachate
surface &
ground
water

Fond du Lac County, Wisconsin

Surface water and ground water were contaminated. At least one well was affected. In 1964, the Wisconsin State Board of Health received complaints of ground water contamination. An investigation suggested that organic wastes from a pea cannery were adversely affecting ground water, but no definite proof was found. The contaminated well was abandoned and sealed. The canning company lined a disposal pit to collect the silage liquor for proper disposal. The effectiveness of this action is not known.

organics
surface &
ground
water

Wausau, Wisconsin

An industrial well pumping 500 gallons per minute became contaminated. The contamination was traced to an infiltration pond containing papermill wastes across the Wisconsin River from the well. No remedial action was reported.

papermill
wastes
ground
water

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